SEDIMENTATION IN KANEOHE BAY, OAHU, HAWAII

1977 AND 1978

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ABSTRACT

Sinking material was collected with sediment traps for a 13 month period in a eutrophic subtropical embayment, Kaneohe Bay, Hawaii. A ratio method was applied to distinguish sedimentation from resuspension. An annual average of 74±15% of the total material trapped had been resuspended. The resuspension rate appeared to be controlled by wind speed ($p<0.001$). The contribution of benthic diatoms to the diatom assemblage in the water column was also related to wind speed ($p<0.001$). The annual average sedimentation rates were 0.453 ± 0.23 g·m^{-2}·day^{-1} for organic carbon and 0.373 ± 0.32 mg·m^{-2}·day^{-1} for chlorophyll *a*. The discarded houses of the appendicularian *Oikopleura longicauda* Vogt (9×10^4 houses·m^{-2}·day^{-1}) and fecal pellets produced by net zooplankton (2.77 cm^3·m^{-2}·day^{-1}) contributed about 61% and 13% of the sedimentation rate of organic carbon, respectively. Detritus and phytoplankton contributed about 17% and 9% of organic carbon, respectively. The detritus contribution was calculated by difference. The sinking velocity of the discarded houses appeared to be controlled by the chemical composition of the trapped material ($p<0.001$). The contribution of suspended matter in freshwater runoff was concluded to be about 6.4% of the annual average sedimentation rate, assuming a tenfold increase in concentration of particulate organic matter in the freshwater runoff over the surface water. The annual average sedimentation rate of particulate organic carbon produced in the water column was estimated to be 0.425 ± 0.22 gC·m^{-2}·day^{-1}, which was about 42% of the primary production by phytoplankton in the water column. The annual sedimentation rate including terrestrial material was 165 gC·m^{-2}·year^{-1} (2 kgDW·m^{-2}·year^{-1}). Comparing this estimate with an independent geological estimate (132 gC·m^{-2}·year^{-1}) suggests significant accumulation of

organic matter in the bottom sediments from non-sedimentation processes. Annual sedimentation rate excluding terrestrial material was 155 $gC \cdot m^{-2} \cdot year^{-1}$. About 51% of organic carbon supply was respired in the water column.

INTRODUCTION

Sedimentation measurements using sediment traps have three problems; (1) uncertainty of the collection efficiency (Gardner 1977), (2) uncertainty of the occurrence of decomposition during collection even with a preservative (Hargrave and Taguchi 1978), and (3) difficulty in the separation of sedimentation and resuspension (Steele and Baird 1972).

Laboratory experiments (Gardner 1977) and mathematical analysis (Hargrave and Burns 1979) suggested that cylindrical traps with a width-height ratio of 3 might accurately collect sinking material if velocity flows were less than 15 $cm \cdot s^{-1}$.

Preservatives are sometimes used in measurement of the chemical composition of deposited material, but they are not applicable if biological activity measurements on the deposited materials are necessary. Sampling duration should be short enough to minimize the decomposition of organic material for the latter case. In Kaneohe Bay one day or less was enough to collect sufficient deposited material for the present study. Preliminary experiments showed that the loss due to decomposition within 24 hours was less than 5%.

In order to avoid the problem of resuspension from the nephloid layer and bottom, sediment traps often have been placed at a depth which is thought to be far enough from the bottom to collect only material sinking from the surface layer. The material collected in the sediment trap is then assumed to have originated in the surface layer with no contribution from resuspension. Sometimes this is not the case (Taguchi and Hargrave 1978); for example, in shallow water it is impossible to set the sediment trap far enough from the bottom to avoid

resuspended material. A ratio method, which is applied in the present study, can overcome this problem if the chemical composition of the suspended particulate matter in the water column and bottom sediments is known.

Kaneohe Bay is an embayment of a subtropical island. Its eutrophic condition is due to municipal sewage discharge (Caperon, Cattell and Krasnick 1971, Cox, Fan, Chave, Clutter, Gundersen, Burbank, Lau and Davidson 1973, Caperon 1975, Harvey and Caperon 1976). Primary production and chlorophyll *a* concentration in Kaneohe Bay are about 1 $gC \cdot m^{-2} \cdot day^{-1}$ and 1 mg Chl. $a \cdot m^{-3}$, respectively (Caperon, Harvey and Steinhilper 1976, Laws unpublished data). Total zooplankton standing crop is 46 $mgC \cdot m^{-3}$ or 9.3 $mgN \cdot m^{-3}$ (Peterson 1975, Hirota and Szyper 1976). Suspended particulate organic carbon and nitrogen are about 300 $mgC \cdot m^{-3}$ and 50 $mgN \cdot m^{-3}$, respectively (Caperon, Harvey and Steinhilper 1976). All these parameters are more than 10 times higher than in the Pacific Ocean outside of the bay (Gordon 1971, Hirota unpublished data). One of the unusual features of the bay is the dominant occurrence of the appendicularian *Oikopleura longicauda* Vogt, which discard their houses in response to unfavorable conditions in the zooplankton community.

In spite of the information mentioned above, little is known about vertical flux of particulate matter in Kaneohe Bay. The present study describes (1) a method to distinguish sedimentation from resuspension, (2) factors which control resuspension, (3) the seasonal variability of the sedimentation rate, (4) the effect of freshwater runoff on the sedimentation rate, and (5) the contribution of discarded houses of the appendicularian *Oikopleura longicauda*, fecal pellets of total zooplankton, and phytoplankton to the deposited material. It also discusses an energy budget for suspended particulate matter in the south sector of Kaneohe Bay.

MATERIALS AND METHODS

Sampling was carried out from December 1977 to December 1978 at a central station (14.5 m depth) in the south sector of Kaneohe Bay (Figure 1). The circulation of water in the bay is governed by tidal flow, internal wind mixing and advection, stream input and wave action outside the bay. However the flow in the lagoon is relatively sluggish. Wind stress is effective in mixing the water vertically, and a combination of wind stress and tidal exchange accounts for the flow between the south sector and the rest of the bay.

A Secchi disc reading was taken on every sampling date and the extinction coefficient (k) was calculated by the equation,

$$k = \frac{1.7}{D}$$

where D is the Secchi disc reading in meters (Idso and Gilbert 1974).

The sediment traps used in this study consisted of a glass jar (11.6x34.3 cm ca. 1 liter volume). Two jars were mounted at 10 m below the surface on an anchored nylon rope, and supported by a subsurface float below the surface at 5 m. A small surface float was attached to the subsurface buoy for retrieval (Figure 2). A total of 47 samplings were made over 13 months. Material was collected for 24 hours. A visual examination of the material in the sediment traps showed that no mixing occurred in the traps during retrieval.

The ratio of height to width of the jar was 3:1 as suggested by Gardner (1977). The average relative error of measurement between two jars was less than 16.3% (Table 1). The degradation of deposited material which occurred during 24 hours was less than 5% of the dry weight. Since the degradation was negligible and comparable to the errors between the jars, degradation was not considered.

A preliminary experiment was carried out to collect the sinking material at 4 hour intervals for 24 hours on April 27 and 28, 1979. The amount of trapped material showed a variation of 2.4 to 5.1 $gDW \cdot m^{-2}$ per sampling interval. The tide is a mixed type with an amplitude of 55 cm (Figure 3) during the sampling period. The variation observed suggested that, due to a tidal effect, a 24-hour experiment may be necessary to estimate the daily trapping rate.

After recovery and return to the laboratory, the material in each jar was vigorously mixed and split into quarters using a Folsom splitter (McEwen, Johnson and Folsom 1954). The first and third aliquots were filtered through precombusted and preweighed GF/C filters for dry weight measurement. The GF/C filters were then rinsed with 200 mℓ of distilled water. They were next combusted at 500°C for 6 hours and weighed. The second aliquot was filtered through a GF/C filter for chlorophyll measurement. It was stored in 90% acetone. The fourth aliquot was preserved with 5% buffered formalin for identification and enumeration of phytoplankton, microzooplankton and fecal pellets using an inverted microscope.

Surface water samples were taken at the end of the experiment for determination of suspended particulate matter. Duplicate subsamples for dry weight measurements were filtered through precombusted and preweighed GF/C filters. Duplicate chlorophyll samples were filtered through GF/C filters and stored in 90% acetone. Subsample volume varied from 2 to 5 liters. Two-liter subsamples were preserved in 5% buffered formalin for counting of *Oikopleura* houses.

Bottom samples for determination of sedimented particulate matter were collected with a jar at each recovery of the trap. Dry weight and chlorophyll measurements were made using duplicate subsamples of approximately 200 mg (dry) of bottom sediment in the same manner as the sediment trap samples.

All dry weight samples on GF/C filters were dried at 60°C for over 48 hours. Their dry weights were measured, at least twice, until a stable value was reached. Ash free dry weights were measured after combustion at 500°C for 4 hours. Particulate organic carbon and nitrogen were measured with a Hewlett Packard F&M 185 CHN analyzer (Hirota and Szyper 1976).

Chlorophyll samples were analyzed for total pigment and phaeopigments following the method of Strickland and Parsons (1972) and Lorenzen (1967). The residue of bottom sediments left after pigment extraction was dried at 60°C for over 48 hours until it reached a stable dry weight. The chlorophyll content of the bottom sediment was calculated as mg total chlorophyll per mg dry weight.

The amount of deposited material caught per unit area per unit time was considered to be the trapping rate. The sedimentation rate was calculated by the equation,

$$\text{Trapping rate} = \text{Sedimentation rate} + \text{Resuspension rate.} \quad (1)$$

The concentration of any chemical property in the trapped material could be expressed as a combination of its value in the sediment material and its value in the resuspended material. For example, percent Ash Free Dry Weight (AFDW) can be written:

$$[\%\ \text{AFDW}]_{\text{Total}} = X[\%\text{AFDW}]_{\text{Sedimented}} + Y[\%\text{AFDW}]_{\text{Resuspended}} \quad (2)$$

where

$$X + Y = 1 \quad (3)$$

and $[\%\ \text{AFDW}]_{\text{Total}}$ is % AFDW of the material in the trap, $[\%\ \text{AFDW}]_{\text{Sedimented}}$ is % AFDW of the material from a water column (90%), $[\%\ \text{AFDW}]_{\text{Resuspended}}$ is % AFDW of the material from the bottom surface (7%), X is the proportion of sedimented material in the trap and Y is the proportion of resuspended material in the trap.

After recovery of the sediment traps, several intact empty *Oikopleura* houses were transferred to filtered seawater. The empty houses were then placed in the top portion of a 1 liter graduated cylinder filled with filtered seawater. The sinking time of the empty houses between each 100 mℓ (34.5 mm) graduation of the cylinder was measured and then converted to the units $m \cdot day^{-1}$. Temperature and salinity were kept at 26±1°C and 33±0.5 °/oo, respectively.

RESULTS AND DISCUSSION

Magnitude and Range of the Parameters

Table 2 shows the average, standard deviation, and range of the variables observed during the present study. As expected, variation is the largest in the dry weight measurement, which includes the inorganic and organic fractions.

Seasonal Variation of Wind Direction and Speed and Extinction Coefficient

Table 3 shows wind, extinction coefficient, and 1% light depth data. Means of wind direction and speed are presented for the day sediment trap recovery and for one to three days prior to the deployment of the sediment traps. Wind speed ranged from 0 to 12.4 $km \cdot h^{-1}$ throughout the year. The annual average wind speed was 5 $km \cdot h^{-1}$ with a 40-50% coefficient of variation on any given date. In the analysis of the effect of wind speed on resuspension rate (see below), the three day integrated wind speed gave the highest correlation ($r = 0.868$). Although the trade wind (300°-90°) direction was the most prevalent, five occasions were dominated by non-trade wind directions (90°-300°).

The extinction coefficient showed an annual mean of 0.29 ± 0.11 m^{-1} (Table 3). In more than 60% (29 out of 47) of samplings the bottom received more than 1% of surface light.

Seasonal Variation of Temperature and Salinity

Temperature and salinity are shown in Table 4. Temperature ranged from 22° to 27°C, exhibiting less vertical stratification than salinity. Surface salinity ranged from 31.72 to 35.25 °/oo, indicative of the effect of freshwater runoff. The salinity at 10 m shows less variation, with an annual average of 34.95 °/oo, with lower values in the May-June and November-December periods.

The maximum difference in salinity between 1 m and 10 m was -3.24 °/oo (9.27% in volume) on November 1, 1978. Data for most of the sampling dates show that the effect of freshwater runoff is less than 1% in volume, assuming that the salinity difference berween 1 m and 10 m depth is caused by freshwater runoff only. Annual average of the effect of freshwater runoff, in volume, was 0.644±1.63%.

Seasonal Variation of Trapping Rates

Total pigment and phaeopigments: The seasonal variations of trapping rates for total pigments and for phaeopigments (Figure 4) show a similar pattern. The trapping rate measured by total pigment had a 34-fold variation, the trapping rate measured by phaeopigments varied 630-fold. The contribution of phaeopigments to total pigment was less than 10% when the trapping rate of total pigment was less than 1 $mg \cdot m^{-2} \cdot day^{-1}$, however at the highest trapping rates 60% of the total pigments are phaeopigments.

Dry weight, ash free dry weight and organic carbon: The seasonal pattern in trapping rates for dry weight, ash free dry weight and organic carbon (Figure 5) are similar, with the largest variation (about 145-fold) in the dry weight measurements. When the trapping rate for dry weight was higher than 40 $gDW \cdot m^{-2} \cdot day^{-1}$, ash free dry weight and particulate organic carbon contributed less than 20% and 7% of the dry weight, respectively.

The dry weight of suspended particulate matter (Figure 6) in the surface water showed an annual mean of 2.04±1.37 $g \cdot m^{-3}$. The organic carbon content of bottom sediments showed an annual mean of 3.22±1.79%. There is no direct relationship between the dry weight of particulate matter and the carbon content of bottom sediments.

Comparison of % chlorophyll *a* of total pigments for suspended, trapped and bottom particulate matter

The concentration of surface total pigment in the surface water (Figure 7) showed a 15-fold variation throughout the year with a mean concentration of 1.42 $mg \cdot m^{-3}$. The mean % chlorophyll *a* of totalpigment in the surface water was 79%. However the % chlorophyll *a* of total pigment in bottom sediments was always 0% throughout the year. Phaeopigment content of bottom sediments showed about a 3.7-fold variation. There was no relationship between the concentration of surface total pigment and phaeopigment content of bottom sediments.

The % chlorophyll *a* of total pigment varied from 5% to 96% of total pigment collected in the trap. The relationship between trapping rate of total pigment and its % chlorophyll *a* is shown in Figure 8. The negative relationship is significant ($p<0.001$). At low trapping rates, less than 1 mg total $pigment \cdot m^{-2} \cdot day^{-1}$, the % chlorophyll *a* is higher than 90%. The % chlorophyll *a* is lower than 40% at trapping rates higher than 10 mg total $pigment \cdot m^{-2} \cdot day^{-1}$.

Comparison of % ash free dry weight (% AFDW) of dry weight for suspended, trapped and bottom particulate matter

Frequency distribution of % AFDW for bottom sediment and suspended particulate matter is shown in Figure 9. The % AFDW of bottom sediment showed a 3.8-fold variation and the minimum % AFDW was about 7.0%. The % AFDW of suspended particulate matter showed a wider variation than the bottom sediment and the maximum % AFDW was 86%. The % AFDW of particulate matter collected in the sediment trap varied between 8.7% and 63%, with an annual mean of 25%. The negative relationship between the trapping rate of dry weight and its % ash free dry weight is shown in Figure 10. The correlation ($r = 0.867$) is significant ($p<0.001$).

Comparison of % organic carbon of dry weight for suspended, trapped and bottom particulate matter

Bottom sediment showed an 11-fold variation in % organic carbon of dry weight, with an annual mean of 3.2%. The minimum % organic carbon of dry weight was 0.74% for the bottom sediment (Figure 6). The % organic carbon of dry weight for suspended particulate matter showed about a 99-fold variation, with an annual mean of 13% and a maximum of about 53%. The % organic carbon of dry weight for particulate matter collected in the sediment trap showed about a 34-fold variation, with an annual mean of about 12%.

Figure 11 shows the relationship between the trapping rate ($gDW \cdot m^{-2} \cdot day^{-1}$) and % organic carbon of deposited material. The negative correlation (-0.849) is highly significant ($p<0.001$).

Comparison of % organic nitrogen of dry weight for suspended, trapped and bottom particulate matter

Bottom sediment showed an 18-fold variation in % organic nitrogen of dry weight, with an annual mean of 0.13%. The minimum % organic nitrogen of dry weight was 0.015% for the bottom sediment. The % organic nitrogen of dry weight for suspended particulate matter showed 23-fold variation, with an annual mean of 2.1% and the maximum was 6.6%. The % organic nitrogen of dry weight for particulate matter collected in the sediment trap showed a 25-fold variation throughout the year, with an annual mean of 1.5%.

Figure 12 shows a relationship between the trapping rate ($gDW \cdot m^{-2} \cdot day^{-1}$) and % organic nitrogen of deposited material. The negative correlation (-0.828) is highly significant ($p<0.001$).

Comparison of carbon-nitrogen ratio for suspended, trapped and bottom particulate organic matter

Table 5 shows the mean, standard deviation, and range of carbon-nitrogen ratio for suspended, trapped and bottom particulate organic matter. Suspended organic matter showed a 2.6-fold variation in C/N ratio with the smallest annual mean of 6.07. Bottom sediments showed a 140-fold variation in C/N ratio with the largest annual mean of 76.7. Although the annual variation of C/N ratio was 2.5-fold, which is similar to the suspended organic matter, the particulate organic matter collected in the sediment trap had an intermediate C/N ratio, i.e., annual mean = 9.72.

Seasonal Variation of Sedimentation

Percent chlorophyll *a* of total pigment, % AFDW, % organic carbon and % organic nitrogen show negative relationships with the trapping rate (Figures 8, 10, 11 and 12). These relationships suggest the possible application of equation (2) to separate the trapping rate into sedimentation rate and resuspension rate. The most significant correlation is observed in the relationship between trapping rate and % AFDW. The % sedimentation calculated ranged from 2.1% to 59%, with an annual mean of 26±15% (Table 6). On the other hand the % resuspension ranged from 41% to 98% with an annual mean of 74±15%. Figure 13 shows the calculated relationship between wind speed and resuspension rate. The positive correlation is highly significant ($p<0.001$) if the 3 day integrated wind speeds prior to the deployment of sediment trap are considered. This suggests that the high wind speed may cause high resuspension from the bottom layer (nephloid layer) and possibly bottom sediment. Similar wind effect was observed in nutrient release from the bottom (Davies 1975).

There is no seasonal variation of sedimentation rate for organic carbon

(Figure 14). The annual mean of sedimentation rate was 0.453±0.24 $gC \cdot m^{-2} \cdot day^{-1}$ (Table 6). However, the total pigment shows seasonal variations; high in warm (dry) seasons and low in cold (wet) seasons. The annual mean of sedimentation rate ot total pigment was 0.956±0.63 $mg \cdot m^{-2} \cdot day^{-1}$ (Table 6).

Seasonal Variation of Trapped Phytoplankton

Species composition and abundance: Table 7 shows 61 species of diatoms, 15 species of dinoflagellates, 2 species of flagellates and 3 species of silicoflagellates identified in the sediment traps during the period from December 1977 to December 1978. Five diatoms and one dinoflagellate comprising about 8% of the total number of species are oceanic.

Total trapped phytoplankton (Figure 15) showed a 22-fold variation, and the annual mean was 168×10^3 $cells \cdot m^{-2} \cdot day^{-1}$ (Table 8).

Diatoms: Trapped planktonic diatoms (Figure 16) showed a 3800-fold variation, and the annual mean was 48.9×10^6 $cells \cdot m^{-2} \cdot day^{-1}$ (Table 8). Trapped benthic diatoms (Figure 17) showed a 12,000-fold variation, and the annual mean was 16.7×10^6 $cells \cdot m^{-2} \cdot day^{-1}$ (Table 8).

The occurrence of benthic diatoms in the water column must be related to vertical water movement. Wind is effective in mixing the water vertically in Kaneohe Bay. The contribution of benthic diatoms to planktonic diatoms in the water column shows a 3300-fold variation, and the annual average was 0.937±1.99. Figure 18 shows the relationship between % sedimentation and the ratio of benthic diatoms to planktonic diatoms collected in the sediment trap. When % sedimentation is low, benthic diatoms contribute more than planktonic diatoms and *vice versa*. The negative correlation ($r = -0.696$) is significant ($p<0.001$). This suggests that wind may cause vertical mixing and subsequent resuspension

of benthic diatoms.

Dinoflagellates: Dinoflagellates collected in the sediment trap (Figure 19) showed a 16,000-fold variation, and the annual average was 34.5×10^6 cells$\cdot m^{-2} \cdot day^{-1}$ (Table 8).

Flagellates: Flagellates collected in the sediment trap (Figure 20) showed more than a 30,000-fold variation, and the annual mean was 58.1×10^6 cells$\cdot m^{-2} \cdot day^{-1}$ (Table 8).

Silicoflagellates: Only three species, *Dictyocha fibula* Ehrenberg, *Distephanus speculum* (Ehrenberg) Haeckel, and *Mesocena polymorpha* Ehrenberg v. *bioctonari* (Ehrenberg) Lemmermann were observed in the sediment trap throughout the year in Kaneohe Bay. *Dictyocha fibula* comprised more than 99% of the total silicoflagellates (Figure 21). Silicoflagellates showed a 4100-fold variation, and the annual mean was 9.54×10^6 cells$\cdot m^{-2} \cdot day^{-1}$ (Table 8).

Seasonal Variation of Trapped Microzooplankton

Table 9 shows 13 species of tintinnoinea, 4 species of copepods, 3 species of eggs, and 5 species of protozoa identified in the sediment trap during the period from December 1977 to December 1978.

Total microzooplankton collected in the sediment trap (Figure 22) showed a 5200-fold variation, and the annual average was 6.62×10^6 animals$\cdot m^{-2} \cdot day^{-1}$ (Table 10).

Tintinnoinea were the most important members of the microzooplankton (Figure 18), and their annual average % occurrence was about 62% of total microzooplankton (Table 10). The second most important fraction was eggs with an annual average % occurrence of about 20% (Table 10).

Seasonal Variation of Trapped Fecal Pellets

Total number of fecal pellets collected in the sediment trap (Figure 23) showed a 65-fold variation, and the annual mean was 15.9×10^6 pellets$\cdot m^{-2} \cdot day^{-1}$ (Table 11).

Total volume of fecal pellets collected in the sediment trap (Figure 24) showed a 340-fold variation, and the annual mean was 2.77 $cm^3 \cdot m^{-2} \cdot day^{-1}$ (Table 11).

Fecal pellets produced by *Oikopleura longicauda* were the most important component of the fecal pellets collected in the sediment trap. Their % occurrence was less than 10% in August and more than 80% in November. The % occurrence ranged from 5% to 84% of the total, with an annual mean of 44%, and the volume ranged from 24% to 99% of the total, with an annual mean of 66% (Table 11, Figures 23 and 24).

Size Distribution of Fecal Pellets

Table 12 shows the size distribution of fecal pellets of total zooplankton collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978. The volume ranged from $8 \times 10^3 \mu m^3$ to $4 \times 10^7 \mu m^3$. The most common size range was $1.0\text{-}2.5 \times 10^4 \mu m^3$ (annual average: 28%).

Table 13 shows the size distribution of fecal pellets of *Oikopleura longicauda* collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978. The most common size range was $1.0\text{-}2.5 \times 10^5 \mu m^3$, which was 10 times bigger than the most common size range for total fecal pellets (annual average: 20.7%).

The most common size of *Oikopleura* fecal pellets ($1.0\text{-}2.5 \times 10^5 \mu m^3$) corresponds to a trunk length ranging from about 330 to 460 μm (Figure 25).

It is reasonable to assume that *Oikopleura longicauda* with a trunk less than 330 μm is only collected in the micro-net (333-35 μm mesh size). The corresponding fecal pellets contributed about 55% of total fecal pellets by *Oikopleura longicauda* (Table 13).

Since the % organic carbon content of dry weight for suspended particulate matter showed a 100-fold variation, the organic carbon content of fecal pellets can be expected to show similar but less variation. This variation is seasonal due to wind and biological events. The size of fecal pellets shows about 500-fold variation (Table 12). The organic carbon content may depend on the size of fecal pellets. Figure 26 shows the relationship between % sedimentation and a ratio of particulate organic carbon sedimented to fecal pellet volume of total zooplankton collected in the sediment trap. Their positive correlation (0.793) is highly significant ($p<0.001$). This relationship suggests that the organic carbon content is high when % sedimentation is high or % resuspension is low.

Seasonal Variation of Trapped Discarded *Oikopleura* Houses

The standing stock of the discarded houses in the surface water showed a 130-fold variation (Figure 27 and Table 14), and the annual mean was 1.71×10^4 houses$\cdot m^{-3}$ (Table 14).

The seasonal variation of discarded *Oikopleura* houses collected in the sediment traps (Figure 27) showed a 74-fold variation, and the annual mean was 3.33×10^5 houses$\cdot m^{-2} \cdot day^{-1}$ (Table 14). The number of *Oikopleura* houses collected in the sediment trap shows a similar seasonal trend of standing crop of *Oikopleura* houses in the surface water. However the standing crop of *Oikopleura* houses in the surface water can explain only 20% of seasonal

variation of *Oikopleura* houses collected in the traps.

Once animals discard their houses, the houses either stay in the water column or sink to the bottom, depending on their specific gravity. Since *Oikopleura longicauda* does not have a screen filter over the incurrent openings (Alldredge 1977), all sizes of particles, which are smaller than the intake, can be taken into the house by the tail movement. Phytoplankton and microzooplankton, which are too big to ingest, were often observed in the house in the present study. On a calm day the discarded house, floating on the surface, has an air bubble, which may be produced by photosynthesis of phytoplankton trapped in the house. Because of the house structure, it is reasonable to assume that phytoplankton content of suspended particulate matter may be an important factor in controlling the specific gravity of the discarded house. The sinking velocity of the discarded house (SV) can be calculated by the following equation,

$$SV\ (m \cdot day^{-1}) = \frac{SC.D}{SR} \qquad (4)$$

where SC is the standing crop of the discarded houses in the surface water in number of houses per m^3, D is the depth of the water column, and SR is the sedimentation rate of the discarded houses in number of houses per m^2 per day (Table 14). Figure 28 shows the relationship between the ratio of total pigment to dry weight of deposited material in the sediment trap and the sinking velocity of the discarded houses. A significant negative correlation ($p<0.001$) suggests that their sinking velocity is controlled by total pigment content of the suspended particulate matter.

Laboratory Measurement of Sinking Velocity of Discarded *Oikopleura* Houses

The laboratory measured sinking velocity of houses discarded by *Oikopleura longicauda* showed a 6.2-fold variation with a mean of 189m·day^{-1} (Table 15). This is 390 times higher than the sinking velocity estimated from field observations (Table 14). This difference can be explained by the following: (1) the laboratory measurement was carried out in a still water column with a constant temperature and salinity, and (2) the *in situ* measurement was based on the number of discarded houses collected in the sediment trap, which is a combined result of the specific gravity of the discarded houses and vertical water movement.

GENERAL DISCUSSION

Sedimentation removes suspended particulate matter from the water column. It also provides an input of energy and materials to bottom communities and thus links the production in the water column with that at the sediment surface. While most measurements of sedimentation by suspending collectors at fixed depths in the water column have been intended to measure nutrient input to the sediment, the collectors sometimes collect resuspended particulate matter (Hargrave and Taguchi 1978). This is particularly true in shallow waters. To collect suspended particulate matter produced in the euphotic zone, the collectors must be placed below the euphotic zone, however the depth of the euphotic zone in embayments of subtropical islands is often close or equal to the bottom depth. At the same time it is necessary to place the collectors far enough from the bottom so as to collect a minimum of resuspended particulate matter.

Theoretically, the ratio method should be able to distinguish sedimentation from resuspension. Any chemical constituent can be used in the ratio method as long as its chemical concentration in the surface water is different from its concentration in the bottom sediment. Biological information can also be applied to the ratio method, as in the relationship between % sedimentation and a ratio of benthic diatoms to planktonic diatoms (Figure 18). Percent AFDW shows the most significant correlation (r=0.867) with the dry weight trapping rate (Table 16). Therefore % AFDW was used with the ratio method. The % AFDW showed a wide variation, from 94% for *Monochrysis lutheri* to 43% for *Coscinodiscus* sp. (Parsons, Stephens and Strickland 1961). Although the majority of phytoplankton species in Kaneohe Bay were diatoms (Table 8), flagellates, which have a higher % AFDW, occasionally

comprised more than 98% of total phytoplankton. As shown in Figure 9, the % AFDW of the bottom sediment was never below 7%. The maximum % AFDW for the suspended particulate matter never exceeded 90%. Therefore these two values were used in equation (2) to calculate % sedimentation and % resuspension. The linear relationship between % AFDW of the deposited material and % sedimentation is shown in Figure 30. Seven % AFDW corresponds to 0% sedimentation and 65% AFDW corresponds to 70% sedimentation.

The percent sedimentation was calculated using a range of % AFDW in the bottom sediment from 1% to 10%, in order to examine the potential errors associated with assuming a fitted value of 7%. A ratio was formed between these calculated values and the value using the standard 7%. The family of errors in Figure 30 shows the results of these calculations, if the % AFDW for the bottom sediment was actually 1% instead of 7%, a 20% error in the % sedimentation would result at the annual mean % AFDW of 25%.

Sedimentation rates for dry weight, ash free dry weight, organic carbon, organic nitrogen, total pigments and chlorophyll *a* were calculated with equations (2) and (3) based on the assumptions mentioned above of 7% AFDW in the sediment and 90% AFDW in the suspended particulate matter. The annual sedimentation rates of dry weight and organic carbon were $1.99 kgDW \cdot m^{-2} \cdot year^{-1}$ and $165 gC \cdot m^{-2} \cdot year^{-1}$, respectively. They can be compared to an independently estimated value by Roy (1970), who reported a 1.64±0.49m infilling of the lagoon area in Kaneohe Bay during the period of 1927 to 1969. Since the year in the present study, however, had a least effect of freshwater runoff (Smith 1978), it is reasonable to assume that the infilling would be close to a lower limit of the estimate, i.e. 1.15m. Roy (1970) estimated that non-$CaCO_3$ infilling was

28%, which probably represents the contribution of non-$CaCO_3$ during the present study. If one assumes that; (1) the density of dry sediment is a 3.0 $g \cdot cm^{-3}$ for the present station (Hollett 1977), (2) the average porosity is a 77% (Roy 1970, Hollett 1977), and (3) the organic carbon content of bottom sediment down to 1 m depth is 2.5% (Smith 1978, Ristvet 1978), the annual carbon sedimentation is

$$\frac{1.15m}{42\ years} \times 3.0\ \frac{g}{cm^3} \times 10^6\ \frac{cm^3}{m^3} \times (1-0.77) \times 0.025\ \frac{gC}{gDW} \times 0.28 = 132\ gC \cdot m^{-2} \cdot year^{-1}.$$

This is 80% of the sedimentation value (165 $gC \cdot m^{-2} \cdot year^{-1}$) calculated in the present study.

The oxygen consumption by bottom sediments was 0.471 $mgO_2 \cdot m^{-2} \cdot day^{-1}$ (Harrison, personal communication). If one assumes that the respiratory quotient (RQ) is 0.85, the annual oxygen consumption is 54.7±23.2 $gC \cdot m^{-2} \cdot year^{-1}$, which is 33% of the sedimentation rate estimated in the present study. Although there are different sources of error such as extraordinarily low freshwater runoff during the present study (Smith 1978) and unusual high flood in 1969 (Roy 1970), the present calculation is accurate enough for the present purpose. The result of this calculation suggests a slow utilization of deposited material by benthic organisms and a consequent accumulation of organic material in the bottom sediment.

One disadvantage of the ratio method is that it excludes the effect of freshwater runoff. To correct for freshwater runoff, it is possible in the present study to estimate the contribution of organic carbon load in the freshwater runoff with a vertical profile of salinity. The following expression gives the % contribution of freshwater runoff (R),

$$R = \frac{100\Delta S}{S_{10}} \qquad (4)$$

where ΔS is a salinity difference between 1m and 10m (Table 4), and S_{10} is the salinity at 10m depth. The % contribution of freshwater runoff is calculated for each sampling date (Table 4). The contribution of freshwater runoff ranged from 0% to 93% with an annual average of 6.4% (Table 17). The average concentration of particulate organic carbon in the freshwater runoff is 10 times higher than that in the ambient Kaneohe Bay water (Smith personal communication). The sedimentation rates corrected by freshwater runoff are shown in Table 17. The annual average corrected sedimentation rates for organic carbon and nitrogen are 0.425±0.239 $gC \cdot m^{-2} \cdot day^{-1}$ and 0.0451±0.0246 $gN \cdot m^{-2} \cdot day^{-1}$, respectively.

Although no data are available for organic carbon content of fecal pellets in terms of the ratio of organic carbon to fecal pellet volume and Figure 26 suggests a wide variation in the ratio of sedimenting organic carbon to fecal pellet volume, it would be reasonable to estimate a dry weight (DW)/volume ratio of about 20%, and a carbon/DW ratio of about 10%. This provides a conversion factor of 0.02 from volume to organic carbon of fecal pellets. Therefore, the annual average volume of fecal pellets sedimented, 2.77 $cm^3 \cdot m^{-2} \cdot day^{-1}$, represents an organic carbon flux of 0.0554 $gC \cdot m^{-2} \cdot day^{-1}$ (Table 18).

There is a wide variation in the organic carbon content of the discarded houses of *Oikopleura longicauda* from, 1 to 10μgC per house. Although Alldredge (1976) did not report the carbon content for *Oikopleura longicauda* houses, her data suggest that the average carbon content can be reasonably assumed to be 3gC per house. This may be an underestimate because of the high concentration of suspended particulate matter for Kaneohe Bay. This assumption corresponds to 0.258 $gC \cdot m^{-2} \cdot day^{-1}$ for the sedimentation due to discarded houses of *Oikopleura longicauda* (Table 18).

The most common component in the deposited material is the discarded houses of *Oikopleura longicauda* (60.3%), the second is detritus (17.5%) and the third is fecal pellets (13%). Although many workers have shown the importance of fecal pellets in sedimentation (see Schrader 1971, Manheim, Hathaway and Uchupi 1972, Cherry, Fowler, Beasley and Heyroud 1975, McCave 1975, Bishop, Ketten and Edmond 1978, Hargrave and Taguchi 1978), the contribution of total zooplankton fecal pellets is only 13% of the total organic carbon in Kaneohe Bay (Table 18). Alldredge (1976) reported that macroscopic organic aggregates produced by appendicularians constituted less than 5% of the total particulate carbon in the Gulf of California. Her estimate of density was only 256 houses$\cdot m^{-3}$; in Kaneohe Bay the annual average density was 17,100 houses$\cdot m^{-3}$ (Table 14). The large contribution by discarded houses to the sedimentation rate of total organic carbon in Kaneohe Bay is therefore not surprising.

More than 99% of total zooplankton was microplankton between 333μm and 35μm (Table 19). Total *Oikopleura longicauda* contributed less than 1%. More than 80% of total *Oikopleura longicauda* were less than 333μm (annual average: 90.3±6.69%). *Oikopleura longicauda* with a trunk length of less than 333μm produced fecal pellets with volumes smaller than $1x10^5 \mu m^3$ which represent 56% of the total fecal pellets by *Oikopleura longicauda*. This suggests that the production rates of fecal pellets by the two *Oikopleura* size groups; larger than 333μm and smaller than 333μm in trunk length are not similar. Furthermore,it suggests that *Oikopleura longicauda* with a trunk smaller than 333μm had a lower production rate of fecal pellets per house. It also suggests that the production rate of houses by smaller *Oikopleura longicauda* was higher than that by large ones because of easier clogging of the filter by suspended particulate matter compared to a larger house. A ratio

of total *Oikopleura longicauda* to macrozooplankton plus *Oikopleura longicauda* in the micro-net was calculated (Table 19). This ratio suggests that the annual average contribution of *Oikopleura longicauda*, which produce fecal pellets, to total zooplankton, of which only the larger animals produce fecal pellets, is 68% This is a minimum estimate because some of the zooplankton in the micro-net produce fecal pellets. It is interesting to compare this 68% to the volume contribution of fecal pellets by *Oikopleura longicauda*, which is 66% in Table 11.

The production rate of houses by *Oikopleura longicauda* can be estimated by the following equation,

$$\frac{dH}{dt} = H\ (g-s-p) \qquad (5)$$

assuming that a horizontal flux is negligible. H is the number of discarded houses in the water column (number$\cdot m^{-2}$), t is time (day), g is the specific production rate of houses (number$\cdot$number$^{-1}\cdot$day^{-1}), s is the specific sedimentation loss rate of houses (number sedimented$\cdot$number$^{-1}\cdot$day^{-1}), and p is the specific predatory loss rate of houses (number eaten$\cdot$number^{-1}day^{-1}). Planktivorous reef fish, especially *Abudefduf abdominalis*, consume both discarded and occupied *Oikopleura longicauda* houses in Kaneohe Bay. However their distribution in Kaneohe Bay is limited to the coral reef area. It is reasonable to assume that there is no predatory loss of houses in the lagoon area. Table 20 summarizes the calculated production rate of houses, production rate of houses per *Oikopleura longicauda* and the production fate of fecal pellets per house. The annual average house production rate per single *Oikopleura longicauda* is 4 houses per day, compared to 6 houses per day by *Oikopleura dioica* cultivated at 13°C (Paffenhöfer 1973). The annual average fecal

pellet production rate per house was about 90 fecal pellets per day. These two estimates suggest that a single house produces about 22 fecal pellets in 6 hours. In optimum laboratory conditions a single house produces a fecal pellet every 2.16 minutes (Taguchi unpublished data). It would take at least 50 minutes to produce 22 fecal pellets. Under natural conditions it is likely to take longer than 1 hour to produce 22 fecal pellets. *Oikopleura longicauda* may take 1 hour to build a new house in the laboratory (Taguchi unpublished data); under natural conditions, it would take much longer and they might swim for some time without a house.

Appendicularians discard their houses in response to disturbances, to the accumulation of fecal pellets, and to clogging of the incurrent filters with phytoplankton and particulate matter (Lohmann 1909). *Oikopleura longicauda*, in the present study, discarded more houses as suspended particulate matter increased (Figure 31). The same kind of relationship was reported by Alldredge (1976) between the % discarded houses of total houses and the total particulate organic carbon. Variations in the concentration of particulate matter affected the rate at which appendicularian houses were discarded. *Oikopleura longicauda* is more susceptible to clogging by particles due to the lack of coarse intake filters. Appendicularians change their filtering rates in response to the concentration of particulate organic matter. *Oikopleura dioica* cleared a smaller volume of seawater at higher phytoplankton densities in the laboratory (Paffenhöfer personal communication cited in Alldredge 1976). House filters of appendicularians clog more readily at high density, resulting in a higher occurrence of discarded houses, even with a reduction of filtering rates at higher concentrations of particulate matter.

In summary, the annual organic carbon sedimentation rate, excluding terrestrial material, was 155 $gC \cdot m^{-2} \cdot year^{-1}$, which was about 42.5% of primary production by phytoplankton in a water column (Table 21). The export of particulate organic carbon, mainly by tidal currents, was estimated to be a 22 $gC \cdot m^{-2} \cdot year^{-1}$ (Smith personal communication). This is only 6% of the primary production. The balance must represent more than 50% consumed by respiration. The results in the present study are quite different from those from Bedford Basin, a glacial embayment in a boreal area (Hargrave and Taguchi 1978). Due to strong tidal currents, the export out of Bedford Basin was 58% of total supply of organic carbon. The loss due to sedimentation in the present study was surprisingly only 15% higher than that in Bedford Basin. The large difference in the respiration between the two areas could be a function of temperature. Comparing a C/N ratio of sedimented material to nutrient release by bottom sediments, nitrogen seems to recycle 1.6 times faster than carbon at the bottom in Kaneohe Bay.

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Table 1. Average relative errors for individual measurements.

Measurement	Number of Samples	Coefficient of Variation
Dry Weight	47	0.128
%AFDW	45	0.110
Total Carbon/Dw	38	0.0804
Inorganic Carbon/DW	39	0.129
Organic Carbon/DW	38	0.0831
Total Nitrogen/Dw	40	0.0824
Inorganic Nitrogen/DW	37	0.163
Organic Nitrogen/DW	37	0.119
Total Pigments	39	0.0630
Phaeopigments	39	0.123
Microscopic Count	45	0.121

Table 2. The mean magnitude, standard deviation and range of the parameters observed in Kaneohe Bay from December 1977 to December 1978.

	Maximum	Minimum	Mean	S.D.
Dry Weight	247	1.70	38.5	53.4
AFDW	29.9	1.07	7.01	5.82
Total Carbon	24.9	0.906	4.03	4.62
Organic Carbon	8.95	0.625	2.21	1.63
Total Nitrogen	1.33	0.127	0.375	0.293
Organic Nitrogen	0.745	0.0949	0.233	0.143
Total Pigment	15.1	0.442	4.57	3.38

Table 3. Wind direction (lower row) and speed (upper row) on the sampling date and one to three days prior to the deployment of sediment traps, and the integrated wind speed during the three days prior to the deployment of the sediment trap. Also the extinction coefficient calculated from Secchi disc readings and the 1% light depth in Kaneohe Bay during the period from December 1977 to December 1978.

Date	Days Prior to Deployment 0	1	2	3	3 Day Integration	Extinction Coefficient	1% Light Depth
09-XII-77	1.86 90	0.621 150	0.621 150	4.97 150	6.21*	0.340	13.5
16-XII-77	12.4 45	6.21 22	3.10 75	1.86 60	11.2	0.453	10.1
23-XII-77	5.59 22	5.45 45	3.10 67	4.97 67	13.0	0.425	10.8
30-XII-77	2.48 180	1.24 22	3.10 -	4.97 135	9.32	0.154	29.9 *
06-I-78	6.83 135	4.97 135	3.10 150	4.97 78	9.32	0.234	19.6 *
27-I-78	6.83 90	6.83 45	5.59 45	4.35 45	16.8	0.283	16.2 *
07-II-78	4.35 180	4.35 150	6.21 180	3.10 150	13.4*	0.283	16.2 *
23-II-78	9.32 248	8.07 315	2.48 150	1.86 150	12.4*	0.179	25.7 *
07-III-78	8.69 90	3.10 22	5.59 225	5.45 202	12.4	0.378	12.2
23-III-78	4.35 90	5.59 75	6.21 75	6.83 22	18.6	0.486	9.5
06-IV-78	9.32 90	8.07 90	8.69 90	9.32 90	26.1	0.486	9.5
13-IV-78	8.07 75	5.45 45	5.59 75	5.59 75	14.9	0.170	27.1
21-IV-78	1.24 45	4.35 202	3.10 202	1.86 225	9.32*	0.148	31.1

* Non-trade wind direction (90-300°)

** Calculated 1% light depth greater than the bottom depth (14.5m)

Table 3 (continued)

Date	Days Prior to Deployment 0	1	2	3	3 Day Integration	Extinction Coefficient	1% Light Depth
27-IV-78	6.21 67	4.97 67	4.97 67	4.97 67	14.9	0.170	27.1**
05-V-78	6.21 22	2.48 0	2.48 0	6.21 90	11.1	0.179	25.7**
11-V-78	6.83 67	9.32 90	8.69 90	8.07 90	26.1	0.486	9.5
19-V-78	1.86 135	0.621 20	1.86 0	4.97 90	7.45	0.170	27.1**
25-V-78	7.45 90	7.45 90	2.48 22	1.24 112	8.07	0.340	13.5
01-VI-78	2.48 67	5.45 67	4.35 90	5.59 90	13.7	0.170	27.1**
06-VI-78	4.35 90	4.35 67	2.48 45	1.24 22	8.07	0.212	21.7**
15-VI-78	6.83 90	7.45 90	8.07 90	6.83 90	22.4	0.340	13.5
22-VI-78	7.45 75	9.32 90	7.45 75	6.83 75	23.6	0.212	21.7**
30-VI-78	6.21 90	6.83 90	6.83 90	6.83 90	20.5	0.243	18.9**
07-VII-78	6.83 90	6.83 75	5.59 75	6.83 75	19.3	0.261	17.6**
14-VII-78	7.45 75	7.45 90	8.69 75	8.69 75	24.8	0.486	9.5
21-VII-78	8.69 75	6.83 75	6.21 75	6.21 75	19.3	0.425	10.8
28-VII-78	6.21 75	6.83 75	6.21 90	5.59 90	18.6	0.283	16.3**

** Calculated 1% light depth greater than the bottom depth (14.5m)

Table 3 (continued)

Date	Days Prior to Deployment 0	1	2	3	3 Day Integration	Extinction Coefficient	1% Light Depth
04-VII-78	5.59 75	2.48 45	5.45 34	4.97 75	11.1	0.309	14.9**
15-VIII-78	5.45 -	6.21 -	6.83 -	4.35 45	17.4	0.309	14.9**
23-VIII-78	7.45 75	6.83 -	6.21 -	6.83 75	19.2	0.378	12.2
30-VIII-78	6.83 45	7.45 67	2.48 45	4.97 45	11.8	0.283	16.3**
06-IX-78	4.97 45	7.45 180	5.59 180	6.21 75	16.1	0.212	21.7**
12-IX-78	6.83 75	6.21 180	6.21 45	4.97 75	17.4	0.212	21.7**
21-IX-78	7.45 180	6.83 75	8.69 75	6.83 75	22.4	0.378	12.2
28-IX-78	5.45 75	4.35 75	5.45 90	4.97 75	13.0	0.154	29.9**
04-X-78	5.59 180	4.97 75	6.21 75	7.45 75	13.7	0.189	24.4**
12-X-78	1.24 75	0.621 180	4.97 180	7.45 90	13.0	0.189	24.4**
18-X-78	5.45 22	2.48 180	0.621 45	1.24 45	4.35	0.142	32.4**
25-X-78	1.86 180	4.35 22	8.69 22	6.21 22	18.6	0.340	13.5
01-XI-78	3.10 45	3.10 -	3.10 45	1.24 -	7.44	0.378	12.2
09-XI-78	0.621 -	0.621 -	0.621 -	1.86 -	3.10*	0.261	17.6**
17-XI-78	2.48 75	5.45 75	5.45 75	4.97 75	12.4	0.340	13.5

** Calculated 1% light depth greater than the bottom depth (14.5m)

Table 3 (continued)

Date	Days Prior to Deployment 0	1	2	3	3 Day Integration	Extinction Coefficient	1% Light Depth
23-XI-78	6.21 75	6.21 75	4.97 112	8.07 90	18.6	0.283	16.3 **
30-XI-78	1.86 -	0 -	4.35 90	8.69 90	13.0	0.243	18.9 **
07-XII-78	7.45 52	9.32 22	3.73 0	6.21 157	19.3	0.340	13.5
22-XII-78	11.8 0	11.8 263	11.2 22	9.94 30	32.9	0.486	9.5
29-XII-78	3.10 290	4.35 180	4.97 45	4.97 0	14.3	0.212	21.7 **
$\bar{X}$	5.68	5.35	5.08	5.37	15.1	0.290	18.1
SD	2.70	2.64	2.40	2.21	6.18	0.107	6.73
CV	0.475	0.493	0.472	0.413	0.410	0.368	0.371

** Calculated 1% light depth greater than the bottom depth (14.5m)

Table 4. Temperature and salinity at different depths and salinity difference between 1m and 10m depth in Kaneohe Bay during the period from December 1977 to December 1978. Also % freshwater runoff calculated by the equation (4).

Date	Temperature (°C)			Salinity (°/oo)			% Freshwater Effect
	1m	5m	10m	1m	10m	ΔS	
09-XII-77	25.4	-	25.4	34.80	34.90	-0.10	0.286
16-XII-77	25.4	-	25.4	34.90	34.90	0.00	0
23-XII-77	22.8	-	22.7	35.00	35.00	0.00	0
30-XII-77	23.8	-	22.6	35.00	35.00	0.00	0
06-I-78	23.3	-	23.0	-	-	-0.05*	0.143
27-I-78	23.0	-	22.6	35.00	35.10	-0.10	0.285
07-II-78	24.0	-	24.0	35.06	35.08	-0.02	0.057
23-II-78	23.5	23.0	23.0	35.23	35.24	-0.01	0.028
07-III-78	24.0	24.0	24.0	34.97	35.03	-0.06	0.171
23-III-78	23.3	23.0	23.0	35.12	35.13	-0.01	0.028
06-IV-78	23.4	23.5	23.4	35.18	35.17	0.01	0.028
13-IV-78						-0.03*	0.085
21-IV-78	24.7	24.9	24.7	33.91	34.97	-0.06	0.171
27-IV-78						-0.11*	0.316
05-V-78	25.2	25.2	25.0	34.53	34.69	-0.16	0.461
11-V-78						-0.42*	1.21
19-V-78	25.8	25.7	25.1	34.05	34.73	-0.68	1.96
25-V-78						-0.40*	1.15
01-VI-78	26.8	26.5	26.5	34.38	34.50	-0.12	0.348
06-VI-78						-0.07*	0.202
15-VI-78	25.7	25.8	25.9	34.88	34.89	-0.01	0.029
22-VI-78						-0.01*	0.029
30-VI-78	26.2		25.9	34.93	34.94	-0.01	0.029

* Interpolated estimate from adjacent values.

Table 4 (continued)

Date	Temperature (°C) 1m	5m	10m	Salinity (°/oo) 1m	10m	ΔS	% Freshwater Effect
07-VII-78						-0.01*	0.029
14-VII-78	26.0	26.0	26.0	35.08	35.08	0.00	0
21-VII-78						-0.01*	0.028
28-VII-78	26.0	26.0	26.0	35.12	35.13	-0.01	0.028
04-VIII-78						-0.04*	0.114
15-VIII-78	26.0	26.0	26.0	35.00	35.08	-0.08	0.228
23-VIII-78	26.0	26.0	26.0	35.06	35.10	-0.04	0.114
30-VIII-78						-0.07*	0.199
06-IX-78	26.5	27.0	27.0	35.06	35.15	-0.09	0.256
12-IX-78						-0.01*	0.028
21-IX-78	26.5	26.5	26.5	35.24	35.16	0.08	0.227
28-IX-78						0.04*	0.114
04-X-78	27.0	27.0	26.5	35.25	35.24	0.01	0.028
12-X-78						-0.06*	0.170
18-X-78	26.0	26.5	26.5	35.03	35.15	-0.12	0.342
25-X-78						-1.68*	4.79
01-XI-78	25.0	26.0	26.5	31.72	34.96	-3.24	9.27
09-XI-78						-1.69*	4.88
17-XI-78	25.0	25.0	25.0	34.14	34.29	-0.15	0.437
23-XI-78						-0.18*	0.524
30-XI-78	25.0	25.0	25.0	34.22	34.44	-0.22	0.639
07-XII-78						-0.16*	0.464
22-XII-78						-0.08*	0.232
29-XII-78	22.0	22.0	22.0	34.53	34.57	-0.04	0.116

Table 4 (continued)

Date	Temperature (°C)			Salinity (°/oo)			% Freshwa
	1m	5m	10m	1m	10m	ΔS	Effect
$\bar{X}$	24.9	25.3	24.9	34.73	34.95	-0.22	0.644
SD	1.36	1.41	1.50	0.701	0.249	0.571	1.63
CV	0.0544	0.0557	0.0604	0.0202	0.00714	2.61	2.53

Table 5. The mean, standard deviation and range of the carbon-nitrogen ratio for suspended, trapped and bottom organic particulate matter observed in Kaneohe Bay from December 1977 to December 1978.

	Maximum	Minimum	Mean	S.D.	N
Suspended matter	9.56	3.71	6.07	1.69	33
Trapped matter	13.3	5.28	9.72	1.91	47
Bottom sediment	1030	7.38	76.7	183	31

Table 6. % sedimentation and sedimentation rate for 6 parameters measured during the period from December 1977 to December 1978. All units are $g \cdot m^{-2} \cdot day^{-1}$ except Total Pigment and Chlorophyll *a* which have unit of $mg \cdot m^{-2} \cdot day^{-1}$.

Date	% Sedimentation	DW	AFDW	Organic Carbon	Organic Nitrogen	Total Pigment	Chlorophy *a*
09-XII-77	46.8	1.65	0.728	0.416	0.0453	0.269	0.255
16-XII-77	20.8	4.33	1.01	0.309	0.0307	0.368	0.276
23-XII-77	9.00	3.82	0.539	0.229	0.0254	0.157	0.126
30-XII-77	20.8	4.44	1.04	0.361	0.0416	0.439	0.354
06-I-78	71.1	1.21	0.764	0.790	0.0859	0.314	0.298
27-I-78	18.5	4.55	0.983	0.334	0.0333	0.169	0.157
07-II-78	42.8	2.68	1.09	0.548	0.0547	0.206	0.195
23-II-78	51.4	2.18	1.04	0.378	0.0610	0.678	0.647
07-III-78	17.6	7.75	1.62	0.451	0.0459	1.29	0.387
23-III-78	19.8	9.52	2.15	0.668	0.103	0.867	0.460
06-IV-78	5.60	5.82	0.658	0.172	0.0238	0.509	0.172
13-IV-78	23.3	7.06	1.79	0.145	0.0875	0.601	0.123
21-IV-78	24.7	2.43	0.644	0.362	0.0464	0.859	0.207
27-IV-78	46.7	9.99	4.39	1.24	0.0619	2.91	1.44
05-V-78	15.6	1.82	0.351	0.214	0.0257	0.490	0.216
11-V-78	2.10	5.17	0.449	0.186	0.0157	0.116	0.0306
19-V-78	33.2	3.53	1.17	0.642	0.0685	2.25	0.967
25-V-78	32.4	3.17	1.03	0.365	0.0368	1.21	0.496
01-VI-78	59.3	1.49	0.802	0.805	0.0878	1.52	1.15
06-VI-78	48.5	5.92	2.68	0.686	0.0530	1.64	1.12
15-VI-78	5.10	8.41	0.926	0.301	0.0256	0.724	0.146
22-VI-78	36.8	9.88	3.57	1.20	0.139	0.931	0.541
30-VI-78	28.7	10.1	3.00	0.629	0.0513	2.50	0.605

Table 6 (continued)

Date	% Sedimentation	DW	AFDW	Organic Carbon	Organic Nitrogen	Total Pigment	Chlorophyll *a*
07-VII-78	28.0	8.11	2.36	0.643	0.0557	1.07	0.290
14-VII-78	11.3	12.0	1.91	0.611	0.0580	1.16	0.183
21-VII-78	8.20	18.1	2.45	0.522	0.0429	1.12	0.0678
28-VII-78	24.4	4.27	1.12	0.447	0.0439	1.31	0.348
04-VIII-78	16.8	4.48	0.909	0.261	0.0253	0.351	0.210
15-VIII-78	29.0	2.48	0.741	0.414	0.0506	0.455	0.135
23-VIII-78	16.5	3.27	0.629	0.266	0.0261	0.464	0.156
30-VIII-78	21.1	5.21	1.23	0.475	0.0427	0.652	0.195
06-IX-78	22.0	7.25	1.77	0.363	0.0273	0.721	0.185
12-IX-78	26.1	3.95	1.09	0.385	0.0486	1.42	0.674
21-IX-78	15.1	11.0	2.08	0.502	0.0551	1.69	0.696
28-IX-78	29.0	4.55	1.36	0.567	0.0578	1.11	0.200
04-X-78	19.4	3.26	0.727	0.256	0.0288	0.924	0.297
12-X-78	23.7	3.07	0.789	0.411	0.0672	1.20	0.734
18-X-78	35.3	3.92	1.37	0.483	0.0474	1.76	0.0141
25-X-78	18.7	4.53	0.988	0.303	0.0489	0.682	0.416
01-XI-78	26.0	5.78	1.59	0.330	0.0328	0.807	0.148
09-XI-78	41.7	3.51	1.40	0.720	0.0663	1.92	0.549
17-XI-78	33.2	5.64	1.87	0.417	0.0313	1.37	0.652
23-XI-78	33.4	5.54	1.85	0.346	0.0351	1.19	0.502
30-XI-78	33.6	2.74	0.918	0.526	0.0556	0.602	0.434
07-XII-78	10.0	3.32	0.495	0.0644	0.0127	0.593	0.00758
22-XII-78	8.70	11.2	1.56	0.315	0.0281	0.911	0.0425
29-XII-78	15.6	2.64	0.509	0.245	0.0201	0.447	0.0147

Table 6 (continued)

Date	% Sedimentation	DW	AFDW	Organic Carbon	Organic Nitrogen	Total Pigment	Chlorophyll *a*
N	47	47	47	47	47	47	47
$\bar{X}$	26.1	5.46	1.36	0.453	0.0480	0.956	0.373
SD	14.6	3.40	0.839	0.237	0.0240	0.626	0.320
CV	0.560	0.623	0.615	0.523	0.501	0.655	0.858

Table 7. List of phytoplankton species collected in sediment traps during the period from December 1977 to December 1978. * indicates oceanic species.

DIATOMS

Achnanthes brevipes Agardh
Amphora sp.
Bacillaria paradoxa Gmelin
Bacteriastrum delicatulum Cleve
Bacteriastrum mediterraneum Pavillard
Biddulphia longicruris Greville
Biddulphia mobiliensis Bailey
Biddulphia pulchella Gray
Campylodiscus taeniatus A.S.
Cerataulina bergoni Péragallo
Chaetoceros affinis Lauder
Chaetoceros affinis v. *willei* (Gran) Hustedt
Chaetoceros brevis Schütt
Chaetoceros castracani Karsten
Chaetoceros costatus Pavillard
Chaetoceros curvisetus Cleve
Chaetoceros decipiens f. *singularis* Gran
Chaetoceros dichaeta Ehrenberg
Chaetoceros defficilus Cleve
Chaetoceros laciniosus Schütt
Chaetoceros pendulus Karsten*
Chaetoceros simplex Ostenfeld
Chaetoceros socialis Lauder
Chaetoceros vanheurcki Gran
Cocconeis sp.
Corethron hystrix Hensen*
Corethron pelagicum Brun*
Coscinodiscus angstu Gran
Coscinodiscus kützingi Schmidt
Coscinodiscus radiatus Ehrenberg
Coscinodiscus rothii (Ehrenberg) Grunow
Diatoma valgare Bory v. *ovalis* Grun
Diploneis splendica (Greg.) Cleve
Grammatophora marina (Lyngbye) Kützing
Grammatophora serpentina (Rales) Ehrenberg
Hemiaulus membranaceus Cleve*
Lauderia borealis Gran
Lauderia glacialis (Grunow) Gran
Leptocylindrus minimus Gran
Leptocylindrus danicus Cleve
Licmophora abbreviata Agardh

Table 7 (continued)

Melosira sp.
Mestogloia minuta Greville
Navicula salinarum Grunow
Navicula distans (Smith) Ralfs
Nitzschia closterium Smith
Nitzschia delicatissima Cleve
Nitzschia longissima (Brébisson) Ralfs
Nitzschia longissima (Brébission) Ralfs v. *reversa* Smith
Nitzschia pacifica Cupp
Nitzschia seriata Cleve
Pleurosigma affine Grun
Pleurosigma fascioda Ehrenberg
Rhizosolenia fragilissima Bergen
Rhizosolenia hebetata f. *semispina* (Hensen) Gran
Rhizosolenia setigera Brightwell
Streptotheca thamesis Shrubsole*
Surirella eximia Grev
Thalassiosira pacifica Gran & Angst

DINOFLAGELLATES
Ceratium furca (Ehrenberg) Dujardin
Ceratium strictum
Dinophysis homunculus Stein
Dinophysis homunculus Stein f. *pedunculatus* Schmit*
Peridinium cerasus Paulsen
Peridinium oceanicum Vanhöffen v. *oblongum* Aurivillius
Peridinium rectum (Kofoid) Pavillard
Peridinium A
Peridinium B
Peridinium C
Dinoflagellate A
Dinoflagellate B
Dinoflagellate C
Dinoflagellate D
Dinoflagellate E

FLAGELLATES
Green cell A (sphere)
Green cell B (avoid)

SILICOFLAGELLATES
Dictyocha fibula Ehrenberg
Distephanus speculum Ehrenberg
Mesocena polymorpha Ehrenberg v. *bioctonari* (Ehrenberg) Lemmermann

Table 8. Cell numbers and % occurrence of planktonic diatoms, benthic diatoms, dinoflagellates, flagellates and silicoflagellates collected in sediment traps during the period from December 1977 to December 1978.

Date	Planktonic Diatoms		Benthic Diatoms		Dino-flagellates		Flagellates		Silico-flagellates		Total
	Cell. No.	%	Cell No.	%	Cell No.	%	Cell No.	%	Cell No.	%	Cell No.
09-XII-77	1.18	46.6	0.208	8.22	0.902	35.6	0.104	4.11	0.139	5.49	2.53
16-XII-77	14.7	41.4	8.62	24.3	8.45	23.8	0.338	0.952	3.38	9.52	35.5
23-XII-77	21.3	36.0	11.5	19.4	20.3	34.3	0.676	1.14	5.41	9.14	59.2
30-XII-77	159	38.2	225	54.1	9.15	2.20	0.620	0.149	22.2	5.34	416
06-I-78	1.20	13.9	0.647	7.50	0.423	4.91	0.0747	0.866	6.27	72.7	8.62
27-I-78	0.688	1.28	2.06	3.84	0.917	1.71	0.229	0.426	49.8	92.7	53.7
07-II-78	155	77.1	4.99	2.48	1.37	0.682	34.4	17.1	5.23	2.60	201
23-II-78	8.42	67.9	0.380	3.06	1.36	11.0	1.95	15.7	0.326	2.63	12.4
07-III-78	115	37.1	58.6	18.9	83.5	26.9	18.8	6.06	33.6	10.8	310
23-III-78	889	46.3	302	15.7	354	18.4	210	10.9	158	8.23	1920
06-IV-78	221	79.2	16.0	5.73	20.8	7.45	6.51	2.33	14.7	5.27	279
13-IV-78	7.41	24.7	1.23	4.10	1.52	5.07	19.7	65.7	0.0982	0.327	30.0
21-IV-78	1.73	10.4	0.256	1.54	0.794	4.78	13.8	83.1	0.0384	0.231	16.6
27-IV-78	0.232	1.22	0.0247	0.130	0.0641	0.337	18.7	98.4	0.0444	0.234	19.0
05-V-78	2.79	18.5	0.380	2.51	1.01	6.69	10.8	71.5	0.0990	0.656	15.1
II-V-78	23.0	0.681	23.0	0.681	999	29.6	2300	68.1	27.4	0.812	3376

Table 8 (continued)

Date	Planktonic Diatoms		Benthic Diatoms		Dino-flagellates		Flagellates		Silico-flagellates		Total
	Cell. No.	%	Cell No.	%	Cell No.	%	Cell No.	%	Cell No.	%	Cell No.
19-V-78	1.28	22.7	0.278	4.94	0.966	17.1	3.02	53.6	0.0888	1.58	5.63
25-V-78	0.912	23.6	0.880	22.7	0.731	18.9	1.01	26.1	0.339	8.76	3.87
01-VI-78	0.277	18.3	0.0840	5.56	0.518	34.3	0.456	30.2	0.175	11.6	1.51
06-VI-78	2.04	22.9	0.846	9.48	0.891	9.99	1.72	19.3	3.43	38.4	8.92
15-VI-78	22.0	15.0	10.6	7.21	28.7	19.5	29.4	20.0	55.9	38.0	147
22-VI-78	2.25	20.1	1.48	13.2	1.30	11.6	5.62	50.2	0.533	4.76	11.2
30-VI-78	2.56	21.7	1.74	14.7	0.916	7.76	5.13	43.5	1.47	12.4	11.8
07-VII-78	1.73	11.8	1.45	9.86	2.80	19.0	8.33	56.7	0.391	2.66	14.7
14-VII-78	14.8	31.8	10.8	23.2	6.52	14.0	9.62	20.7	4.73	10.2	46.5
21-VII-78	18.5	21.6	27.6	32.2	19.8	23.1	3.02	3.52	16.8	19.6	85.7
28-VII-78	4.99	43.8	0.684	6.00	1.40	12.3	3.69	32.4	0.616	5.40	11.4
04-VIII-78	7.62	62.5	2.49	20.4	0.697	5.71	0.647	5.30	0.697	5.71	12.2
15-VIII-78	2.33	52.1	0.603	13.5	0.192	4.30	0.685	15.3	0.658	14.7	4.47
23-VIII-78	4.02	59.8	1.44	21.4	0.215	3.20	0.215	3.20	0.829	12.3	6.72
30-VIII-78	4.01	58.3	1.29	18.7	1.04	15.1	0.198	2.88	0.347	5.04	6.88
06-IX-78	26.0	77.8	3.77	11.3	2.19	6.56	0.343	1.03	1.10	3.29	33.4
12-IX-78	55.5	94.4	1.13	1.92	0.955	1.62	0.434	0.738	0.781	1.33	58.8

Table 8 (continued)

Date	Planktonic Diatoms Cell. No.	%	Benthic Diatoms Cell No.	%	Dino-flagellates Cell No.	%	Flagellates Cell No.	%	Silico-flagellates Cell No.	%	Total Cell No.
21-IX-78	231	96.7	3.44	1.44	1.38	0.577	0	0	3.27	1.37	239
28-IX-78	7.75	73.8	0.951	9.06	0.861	8.20	0.740	7.05	0.136	1.30	10.5
04-X-78	23.3	86.3	1.59	5.89	0.590	2.18	1.22	4.52	0.369	1.37	27.0
12-X-78	18.6	87.7	0.339	1.60	1.14	5.38	0.924	4.36	0.123	0.580	21.2
18-X-78	6.24	71.6	0.691	7.92	0.710	8.14	0.960	11.0	0.115	1.32	8.72
25-X-78	17.7	64.6	4.92	18.0	1.71	6.24	2.59	9.45	0.417	1.52	27.4
01-XI-78	4.33	46.8	2.35	25.4	1.03	11.1	1.17	12.6	0.367	3.97	9.25
09-XI-78	45.0	90.5	0.203	0.408	1.13	2.27	2.06	4.14	1.28	2.58	49.7
17-XI-78	21.5	71.0	0.934	3.08	1.07	3.53	0.381	1.26	6.44	21.3	30.3
23-XI-78	22.0	59.9	2.76	7.52	8.86	24.1	0.460	1.25	2.65	7.22	36.7
30-XI-78	5.29	62.8	0.478	5.67	0.927	11.0	1.41	16.7	0.329	3.90	8.43
07-XII-78	19.9	72.9	2.98	10.9	2.79	10.2	0.648	2.37	1.04	3.81	27.3
22-XII-78	78.4	47.5	39.2	23.8	24.3	14.7	6.94	4.21	16.0	9.70	165
29-XII-78	6.53	41.9	4.52	29.0	2.51	16.1	1.76	11.3	0.251	1.61	15.6
N	47	47	47	47	47	47	47	47	47	47	47
$\bar{X}$	48.9	46.2	16.7	11.9	34.5	11.9	58.1	19.6	9.54	10.3	168
SD	137	27.4	54.3	10.6	153	9.62	335	25.0	25.4	17.6	557
CV	2.79	0.592	3.24	0.896	4.43	0.806	5.77	1.28	2.66	1.71	3.31

Table 9. List of microzooplankton species collected in sediment traps during the period from December 1977 to December 1978.

COPEPODS
- *Acrocalanus inermis* Sewell
- *Euterpina acutifrons* (Dana)
- *Oithona simplex* Farran
- Nauplii

EGGS
- *Acrocalanus inermis* Sewell
- *Oithona simplex* Farran
- Fish

PROTOZOA
- Protozoa A
- Protozoa B
- Protozoa C
- Foraminifera sp.
- Radiorarian sp.

TINTINNOINEA
- *Ascampbelliella* sp.
- *Codonellopsis contracta* Koford & Campbell
- *Codonellopsis inornata* (Brandt)
- *Codonellopsis parva* Koford & Campbell
- *Coxdiella fasciata* (Kofoid)
- *Favella* sp.
- *Helicostomella longa* (Brandt)
- *Metacylis jörgensenii* (Cleve)
- *Parundella aculeata* Jörgensen
- *Proplectella globasa* (Brandt)
- *Proplectella subcaudata* (Jörgensen)
- *Steenstrupiella steenstrupii* (Claparède & Lachmann)
- *Stenosemella* Jörgensen
- *Tintinnopsis aperta* Brandt v. *tocantinensis* Kofoid and Campbell
- *Tintinnopsis karajacensis* Brandt v. *rotundata* Jörgensen
- *Tintinnopsis lindeni* Daday
- *Tintinnopsis platensis* Cunha and Fonseca
- *Tintinnopsis radix* Imhof
- *Tintinnopsis rotundata* Jörgensen
- *Tintinnopsis uruguayensis* Balech
- *Tintinnus latus* (Jörgensen)
- *Tintinnus lusus-undae* Entz
- *Tintinnus tubulosus* Ostenfeld

Table 10. Microzooplankton abundance and % of total microzooplankton for tintinnoinea, copepods, eggs and protozoa collected in sediment traps during the period from December 1977 to December 1978. Unit is animals·m^{-2}·day^{-1}x10^6.

	Tintinnoinea		Copepods		Eggs		Protozoa		Total
Date	Animal No.	%	Animal No.	%	No.	%	Animal No.	%	Animal No.
XII-77	0.208	59.9	0	0	0.104	30.0	0.0347	10.0	0.347
XII-77	2.54	65.3	0.169	4.34	1.18	30.3	0	0	3.89
XII-77	2.03	54.6	0.338	9.09	1.01	27.2	0.338	9.09	3.72
XII-77	4.65	83.3	0.775	13.9	0.155	2.78	0	0	5.58
I-78	0.398	72.6	0.0498	9.09	0.0747	13.6	0.0249	45.4	0.548
I-78	0.630	50.0	0.0573	4.55	0.115	9.13	0.458	36.3	1.26
II-78	0.535	50.0	0.119	11.1	0.119	11.1	0.297	27.8	1.07
II-78	0.326	37.5	0.109	12.5	0.435	50.1	0	0	0.869
III-78	33.6	88.4	0.874	2.30	3.06	8.05	0.437	1.15	38.0
III-78	193	93.2	0	0	3.28	1.58	9.84	4.75	207
IV-78	1.89	37.5	0	0	2.52	50.0	0.630	12.5	5.04
IV-78	0.147	33.3	0.147	33.3	0.147	33.3	0	0	0.442
IV-78	0.0512	36.3	0.0512	36.3	0.0128	9.08	0.0256	18.2	0.141
IV-78	0.0247	62.7	0	0	0.0148	37.3	0	0	0.0394
V-78	0.116	70.3	0	0	0.0495	29.7	0	0	0.165
V-78	1.44	66.7	0	0	0.720	33.3	0	0	2.16
V-78	0.0999	81.9	0	0	0.0220	18.0	0	0	0.122
V-78	0.318	83.2	0.0212	5.55	0.0106	2.77	0.0318	8.32	0.382
VI-78	0.0183	27.8	0.0183	27.8	0	0	0.0292	44.4	0.0657
VI-78	0.121	72.9	0	0	0.0151	9.10	0.0302	18.2	0.166
VI-78	2.20	54.2	0.169	4.16	0.169	4.16	1.18	29.1	4.06

Table 10 (continued)

	Tintinnoinea		Copepods		Eggs		Protozoa		Total
Date	Animal No.	%	Animal No.	%	No.	%	Animal No.	%	Animal No.
22-VI-78	0.118	33.2	0	0	0.178	50.1	0.0592	16.7	0.355
30-VI-78	0	0	0.0916	25.0	0.275	75.0	0	0	0.366
07-VII-78	0.0559	33.3	0.0559	33.3	0	0	0.0559	33.3	0.168
14-VII-78	0.326	50.0	0	0	0.326	50.0	0	0	0.652
21-VII-78	1.01	27.3	0	0	0.336	9.08	2.35	63.5	3.70
28-VII-78	0.274	89.0	0	0	0	0	0.0342	11.0	0.308
04-VIII-78	1.54	77.0	0.149	23.0	0	0	0	0	1.69
15-VIII-78	0.137	62.6	0.0548	25.0	0	0	0.0274	12.5	0.219
23-VIII-78	0.338	68.8	0.0614	12.5	0.0921	18.7	0	0	0.491
30-VIII-78	0.743	93.8	0.0495	6.2	0	0	0	0	0.792
06-IX-78	0.616	47.4	0.137	10.5	0.548	42.1	0	0	1.30
12-IX-78	0.738	73.9	0.0868	8.70	0.174	17.4	0	0	0.998
21-IX-78	2.92	94.2	0	0	0.172	5.54	0	0	3.10
28-IX-78	0.362	44.4	0.0453	5.56	0.408	50.1	0	0	0.815
04-X-78	0.148	50.2	0.0369	12.5	0.111	37.6	0	0	0.295
12-X-78	0.308	77.0	0.0308	7.70	0.0616	15.3	0	0	0.400
18-X-78	0.173	64.3	0.0192	7.14	0.0576	21.4	0.0192	7.14	0.269
25-X-78	0.709	80.9	0	0	0.0834	9.52	0.0834	9.52	0.876
01-XI-78	0.440	85.6	0.0734	14.4	0	0	0	0	0.514
09-XI-78	0.957	87.0	0.0290	2.64	0.116	10.5	0	0	1.10
17-XI-78	0.208	86.0	0.0346	14.3	0	0	0	0	0.242
23-XI-78	0.345	25.0	0.115	8.33	0.920	66.7	0	0	1.38
30-XI-78	0.419	73.8	0	0	0.0598	10.5	0.0897	15.8	0.568

Table 10 (continued)

	Tintinnoinea		Copepods		Eggs		Protozoa		Total
Date	Animal No.	%	Animal No.	%	No.	%	Animal No.	%	Animal No.
-XII-78	0.778	49.9	0	0	0.454	29.1	0.324	20.8	1.56
-XII-78	2.08	20.6	0	0	3.47	34.3	4.51	45.1	10.1
-XII-78	3.26	90.6	0	0	0.167	4.64	0.167	4.64	3.60
N	47	47	47	47	47	47	47	47	47
$\bar{X}$	5.60	61.6	0.0818	8.05	0.441	19.8	0.448	10.7	6.62
SD	28.3	23.3	0.171	10.0	0.863	19.5	1.59	15.6	30.3
CV	5.06	0.378	2.10	1.24	1.96	0.984	3.54	1.45	4.59

Table 11. Abundance and % of total fecal pellets for *Oikopleura longicauda* in number (pellets·m^{-2}·day^{-1}x10^6) and volume (cm^3·m^{-2}·day^{-1}) collected in sediment traps during the period from December 1977 to December 1978.

Date	Oikopleura Number	%	Others Number	%	Total Number	Oikopleura Volume	%	Others Volume	%	Total Volume
09-XII-77	1.74	46.3	2.01	53.7	3.75	0.312	42.2	0.427	57.8	0.739
16-XII-77	25.0	48.1	27.1	51.9	52.1	6.12	73.1	2.25	26.9	8.37
23-XII-77	11.8	32.4	24.7	67.6	36.5	1.27	55.0	1.04	45.0	2.31
30-XII-77	24.6	63.3	14.3	36.7	38.9	3.43	73.1	3.42	26.9	6.85
06-I-78	1.59	29.5	3.81	70.5	5.40	0.233	59.3	0.160	40.7	0.393
27-I-78	1.33	73.2	0.490	26.8	1.82	2.18	93.4	0.150	6.6	2.33
07-II-78	1.25	42.9	1.66	57.1	2.91	0.254	24.0	0.806	76.0	1.06
23-II-78	6.46	53.6	5.64	46.4	12.1	0.181	85.7	0.0310	14.3	0.212
07-III-78	15.5	65.0	8.40	35.0	23.9	4.27	85.0	0.760	15.0	5.03
23-III-78	23.3	40.3	34.4	59.7	57.7	4.72	69.5	2.07	30.5	6.79
06-IV-78	15.7	36.1	28.0	63.9	43.7	3.19	70.6	1.33	29.4	4.52
13-IV-78	4.96	74.8	1.67	25.2	6.63	0.706	88.2	0.094	11.8	0.800
21-IV-78	2.65	62.9	1.56	37.1	4.21	0.375	79.4	0.097	20.6	0.472
27-IV-78	3.30	50.4	3.26	49.6	6.56	0.0432	45.2	0.0524	54.8	0.0956
05-V-78	2.94	42.8	3.92	57.2	6.86	0.540	76.4	0.166	23.6	0.706
11-V-78	5.04	77.8	1.44	22.2	6.48	21.8	99.1	0.200	0.9	22.0

Table 11 (continued)

Date	Oikopleura Number	%	Others Number	%	Total Number	Oikopleura Volume	%	Others Volume	%	Total Volume
19-V-78	2.86	67.4	1.39	32.6	4.25	0.312	71.0	0.128	29.0	0.440
25-V-78	0.784	24.0	2.48	76.0	3.26	0.0907	39.8	0.137	60.2	0.228
01-VI-78	0.558	60.0	0.373	40.0	0.931	0.0500	42.3	0.0680	57.7	0.118
06-VI-78	0.846	30.9	1.88	69.1	2.73	0.101	51.2	0.0970	48.8	0.198
15-VI-78	6.76	20.9	25.5	79.1	32.3	3.42	23.5	11.1	76.5	14.5
22-VI-78	6.98	52.9	6.22	47.1	13.2	1.20	70.4	0.500	29.6	1.70
30-VI-78	9.07	24.4	28.1	75.6	37.2	2.38	73.5	0.850	26.5	3.23
07-VII-78	3.30	26.2	9.30	73.8	12.6	0.730	68.4	0.340	31.6	1.07
14-VII-78	7.82	20.6	30.2	79.4	38.0	2.15	64.0	1.21	36.0	3.36
21-VII-78	31.9	52.8	28.6	47.2	60.5	3.64	76.8	1.10	23.2	4.74
28-VII-78	4.48	37.1	7.62	62.9	12.1	1.19	82.1	0.260	17.9	1.45
04-VIII-78	0.996	5.22	18.1	94.8	19.1	0.175	30.3	0.403	69.7	0.578
15-VIII-78	0.712	6.99	9.49	93.1	10.2	0.0983	27.8	0.255	72.2	0.353
23-VIII-78	0.675	6.34	10.0	93.7	10.7	0.182	37.7	0.300	62.3	0.482
30-VIII-78	3.51	24.8	10.7	75.2	14.2	0.985	77.7	0.285	22.3	1.27
06-IX-78	4.66	20.5	18.0	79.5	22.7	0.960	66.4	0.490	33.6	1.45

Table 11 (continued)

Date	Oikopleura Number	%	Others Number	%	Total Number	Oikopleura Volume	%	Others Volume	%	Total Volume
12-IX-78	6.51	44.9	7.99	55.1	14.5	2.02	73.3	0.730	26.7	2.75
21-IX-78	8.77	47.2	9.83	52.8	18.6	1.33	66.9	0.670	33.1	2.00
28-IX-78	2.22	43.0	2.94	57.0	5.16	0.361	52.8	0.323	47.2	0.684
04-X-78	3.28	37.9	5.39	62.1	8.67	1.15	82.7	0.240	17.3	1.39
12-X-78	4.80	58.4	3.42	41.6	8.22	0.968	88.5	0.122	11.5	1.09
18-X-78	1.38	54.1	1.17	45.9	2.55	0.301	41.6	0.423	58.4	0.724
25-X-78	2.21	44.2	2.79	55.8	5.00	0.312	48.6	0.330	51.4	0.642
01-XI-78	9.98	81.9	2.22	18.1	12.2	4.78	98.3	0.0800	1.7	4.86
09-XI-78	1.10	84.4	0.210	15.6	1.31	0.0915	72.9	0.0345	27.1	0.126
17-XI-78	0.450	31.7	0.970	68.3	1.42	0.0305	46.6	0.0349	53.4	0.0654
23-XI-78	4.14	40.9	5.96	59.1	10.1	0.576	51.6	0.544	48.4	1.12
30-XI-78	0.897	48.4	0.953	51.6	1.85	0.152	85.1	0.0270	14.9	0.179
07-XII-78	2.07	21.1	7.78	78.9	9.85	1.35	80.3	0.330	19.7	1.68
22-XII-78	13.9	40.4	20.5	59.6	34.4	13.4	95.2	1.00	4.8	14.4
29-XII-78	3.93	51.1	3.77	48.9	7.70	0.504	84.5	0.0920	15.5	0.596

Table 11 (continued)

Date	Oikopleura Number	%	Others Number	%	Total Number	Oikopleura Volume	%	Others Volume	%	Total Volume
N	47	47	47	47	47	47	47	47	47	47
$\bar{X}$	6.35	43.6	9.49	56.4	15.9	2.01	65.6	0.756	34.4	2.77
SD	7.31	19.5	9.91	19.5	15.9	3.75	20.4	1.67	20.4	4.33
CV	1.15	0.447	1.04	0.345	1.00	1.86	0.312	2.21	0.593	1.56

Table 12. Size distribution of total zooplankton fecal pellets collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978. Unit is pellets·m^{-2}·day^{-1}x10^3.

Volume (μm^3)	1977				1978							
	09-XII	16-XII	23-XII	30-XII	06-I	27-I	07-II	23-II	07-III	23-III	06-IV	13-IV
7.5-1.0x10^3												
1.0-2.5x10^3												
2.5-5.0x10^3		169	1014				59.4	217	306			589
5.0-7.5x10^3	69.4	1690	676	2480	398	40.1	119	217	43.7	1640	420	147
7.5-1.0x10^4	69.4	1014	1680	0	224	5.73	0	217	524	0	1260	393
1.0-2.5x10^4	521	7774	10140	3720	1519*	40.1	535*	2281	3496	14432	8820	1326*
2.5-5.0x10^4	382	12168*	10140	4805	1220	45.8	297	2824*	4239	18040*	11550*	933
5.0-7.5x10^4	590	6929	4732	4030	772	304	238	1195	3846	5248	5880	786
7.5-1.0x10^5	382	5070	3380	1240	423	223	178	869	1573	1640	2310	442
1.0-2.5x10^5	937*	7605	3042	9300*	523	390*	535*	1629	4589*	5904	5250	835
2.5-5.0x10^5	486	4225	1014	5735	125	252	238	1629	2841	5248	2520	442
5.0-7.5x10^5	34.7	1352	0	4805	24.9	132	356	543	1224	656	840	344
7.5-1.0x10^6	34.7	507	338	1085	0	45.8	119	163	219	656	210	98.2
1.0-2.5x10^6	69.4	1859		775	74.7	115	119	326	1049	984	210	49.1
2.5-5.0x10^6	34.7					118	119		43.7		210	

* Size range with highest abundance.

Table 12 (continued)

Volume (μm^3)	1977				1978							
	09-XII	16-XII	23-XII	30-XII	06-I	27-I	07-II	23-II	07-III	23-III	06-IV	13-IV
$5.0-7.5x10^6$						22.9						
$7.5-1.0x10^7$						17.2						
$1.0-2.5x10^7$						11.5						
$2.5-5.0x10^7$						22.9						
$5.0-7.5x10^7$												
$7.5-1.0x10^8$												

Table 12 (continued)

Volume (μm^3)	1978											
	21-IV	27-IV	05-V	11-V	19-V	25-V	01-VI	06-VI	15-VI	22-VI	30-VI	07-VII
$7.5-1.0x10^3$										59.2		
$1.0-2.5x10^3$										59.2		
$2.5-5.0x10^3$	166	4.93	31.0	2160	332	31.8	62.1	136	1183	533		447
$5.0-7.5x10^3$	76.8	34.5	198		300	42.4	40.2	15.1	676	296	1008	783
$7.5-1.0x10^4$	141	4.93	132		44.4	63.6	54.8	90.6	507	118	1282	224
$1.0-2.5x10^4$	755	148*	1766*	2160*	1010	1410*	266*	1102*	9126	4677*	11267	5814*
$2.5-5.0x10^4$	1101*	153	924		1043*	689	183	891	9633*	2368	13832*	2460
$5.0-7.5x10^4$	550	64.1	380		266	445	54.8	151	6084	1184	3206	950
$7.5-1.0x10^5$	230	59.2	677		200	148	40.2	106	3549	474	916	447
$1.0-2.5x10^5$	704	118	1271		411	297	113	151	1183	1362	2656	1174
$2.5-5.0x10^5$	269	44.4	660	1440	266	117	40.2	60.4	338	888	733	391
$5.0-7.5x10^5$	141	9.86	297		211	21.2	21.9	0		651	91.6	55.9
$7.5-1.0x10^6$	64.0	0	149		11.1		3.65	15.1		237	550	55.9
$1.0-2.5x10^6$		4.93	62.0	720			14.6	30.2		237	458	280
$2.5-5.0x10^6$							3.65			59.2	91.6	

Table 12 (continued)

Volume (μm^3)	1978											
	14-VII	21-VII	28-VII	04-VIII	15-VIII	23-VIII	30-VIII	06-IX	12-IX	21-IX	28-IX	04-X
$7.5\text{-}1.0\times10^3$												
$1.0\text{-}2.5\times10^3$												
$2.5\text{-}5.0\times10^3$	1467	1680	205	199	329	215	544	548	607	516	362	36.9
$5.0\text{-}7.5\times10^3$	1141	1680	68.4	896	493	276	643	616	130	860	90.6	148
$7.5\text{-}1.0\times10^4$	4075	3696	68.4	49.8	493	92.1	297	480	260	348	45.3	36.9
$1.0\text{-}2.5\times10^4$	14833*	18480*	4856*	9910*	5069*	5065*	4603*	11234*	3342*	4123*	1450*	2620*
$2.5\text{-}5.0\times10^4$	6357	17472	2804	5080	2439	2794	2717	4041	2951	4128	1133	2214
$5.0\text{-}7.5\times10^4$	2771	8400	958	1693	986	1013	1732	2466	1215	2408	725	959
$7.5\text{-}1.0\times10^5$	1304	2352	787	299	110	123	495	480	825	348	90.6	221
$1.0\text{-}2.5\times10^5$	2119	5376	718	647	82.2	215	841	1301	1866	3784	453	886
$2.5\text{-}5.0\times10^5$	1467	3360	1265	49.8	54.8	61.4	693	959	1649	1376	317	627
$5.0\text{-}7.5\times10^5$	652	672	479	99.6	54.8	153	396	274	1085	172	272	590
$7.5\text{-}1.0\times10^6$	0	0	239		27.4	30.7	148	137	391	172	45.3	369
$1.0\text{-}2.5\times10^6$	815	336					148	68.5	43.4	172	90.6	111
$2.5\text{-}5.0\times10^6$									43.4			

Table 12 (continued)

Volume (μm^3)	1978											$\bar{X}$	%
	12-X	18-X	25-X	01-XI	09-XI	17-XI	23-XI	30-XI	07-XII	22-XII	29-XII		
$7.5\text{-}1.0\times10^3$												1.26	0.008
$1.0\text{-}2.5\times10^3$								29.9				1.89	0.012
$2.5\text{-}5.0\times10^3$	123	38.4	250	220	58	104	230	209	1037	1388	83.7	381	2.45
$5.0\text{-}7.5\times10^3$	30.8	19.2	250	367	116	104	1150	89.7	1231	1041	251	491	3.15
$7.5\text{-}1.0\times10^4$	154	0	167	1321	0	0	230	120	389	1041	251	461	2.96
$1.0\text{-}2.5\times10^4$	2433*	480*	2127*	4257*	319*	554*	2415*	628*	3823*	6940	1675	4369	28.0
$2.5\text{-}5.0\times10^4$	2033	422	1000	2643	232	311	1840	269	3499	16656*	1927*	3936	25.3
$5.0\text{-}7.5\times10^4$	924	250	459	1468	116	173	1265	120	1620	2776	1088	1776	11.4
$7.5\text{-}1.0\times10^5$	308	134	250	440	116	69.2	1035	59.8	518	1388	419	782	5.02
$1.0\text{-}2.5\times10^5$	1078	442	459	1101	319	69.2	1150	89.7	1685	1041	1090	1634	10.5
$2.5\text{-}5.0\times10^5$	493	326	167	220	0	34.6	575	209	843	1041	670	988	6.34
$5.0\text{-}7.5\times10^5$	277	154	83.4	73.4	0		0	29.9	324	0	83.7	377	2.42
$7.5\text{-}1.0\times10^6$	123	19.2	41.7		0		115	29.9	194	347		149	0.956
$1.0\text{-}2.5\times10^6$	216	76.8	41.7		29.0		0	29.9	194			209	1.34
$2.5\text{-}5.0\times10^6$		19.2					115					18.2	0.117
$5.0\text{-}7.5\times10^6$		0										0.487	0.003
$7.5\text{-}1.0\times10^7$		19.2										0.774	0.005
$1.0\text{-}2.5\times10^7$												0.245	0.001
$2.5\text{-}5.0\times10^7$												0.487	0.003

Table 13. Size distribution of *Oikopleura longicauda* fecal pellets collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978. Unit is pellets·m^{-2}·day^{-1}x10^3.

Volume (μm^3)	1977				1978							
	09-XII	16-XII	23-XII	30-XII	06-I	27-I	07-XII	23-II	07-III	23-III	06-IV	13-IV
7.5-1.0x10^3												
1.0-2.5x10^3												
2.5-5.0x10^3		169					59.4	54.3				491
5.0-7.5x10^3	34.7	0		1240			119	0				98.2
7.5-1.0x10^4	34.7	0	1014	0	24.9		0	0				246
1.0-2.5x10^4	243	1183	2704	1085	149		119	706	1967	5904*	3780*	884*
2.5-5.0x10^4	208	3887	2366	1550	548*		59.4	923	1704	3608	1260	491
5.0-7.5x10^4	312	3380	676	1085	149	275*	119	652	1661	328	2310	687
7.5-1.0x10^5	278	3718	1352	620	99.6	91.7	119	326	1224	656	1470	344
1.0-2.5x10^5	763*	6084*	3042*	7595*	324	275*	178*	1358	4108*	3936	3570	638
2.5-5.0x10^5	243	3549	338	5115	99.6	229	59.4	1575*	2666	4264	1890	442
5.0-7.5x10^5	34.7	1183	0	4995	24.9	97.4	59.4	434	1005	656	840	295
7.5-1.0x10^6		507	338	930	0	11.5		163	219	656	210	98.2
1.0-2.5x10^6		1352		310	74.7	103		326	961	656	210	49.1
2.5-5.0x10^6						160			43.7		210	
5.0-7.5x10^6						17.2						

* Size range with highest abundance.

Table 13 (continued)

Volume (μm^3)	1977				1978							
	09-XII	16-XII	23-XII	30-XII	06-I	27-I	07-XII	23-II	07-III	23-III	06-IV	13-IV
$7.5\text{-}1.0\times10^7$						17.2						
$1.0\text{-}2.5\times10^7$						11.5						
$2.5\text{-}5.0\times10^7$						17.2						
$5.0\text{-}7.5\times10^7$												
$7.5\text{-}1.0\times10^8$												

Table 13 (continued)

Volume (μm^3)	1978											
	21-IV	27-IV	05-V	11-V	19-V	25-V	01-VI	06-VI	15-VI	22-VI	30-VI	07-VII
$7.5-1.0x10^3$												
$1.0-2.5x10^3$												
$2.5-5.0x10^3$	64.0			1440	322	21.2	58.4	121	507	118		168
$5.0-7.5x10^3$	25.6				300	10.6	32.9	15.1	0	0		0
$7.5-1.0x10^4$	115				44.4	31.8	47.5	75.5	0	118		0
$1.0-2.5x10^4$	166	34.5	16.5	1440	1010	159	94.9	166	1690	1480*	1008	280
$2.5-5.0x10^4$	602*	78.9	62.0		1043*	170	98.6	166	2028*	1184	2015	671
$5.0-7.5x10^4$	384	34.5	93.0		266	106	43.8	0	1014	1066	1099	335
$7.5-1.0x10^5$	192	44.4	611		200	53.0	29.2	75.5	507	414	641	224
$1.0-2.5x10^5$	653*	83.8*	1205*		411	180*	102*	151	845	1243	2382*	894*
$2.5-5.0x10^5$	230	39.4	594	1440	266	63.6	29.2	60.4	169	651	733	391
$5.0-7.5x10^5$	102	9.86	297		211	10.6	11.0	0		414	91.6	55.9
$7.5-1.0x10^6$	51.2		93.0		11.1		0	15.1		237	550	0
$1.0-2.5x10^6$			62.0	720			3.65	15.1		118	458	224
$2.5-5.0x10^6$											91.6	

Table 13 (continued)

Volume (μm^3)	1978											
	14-VII	21-VII	28-VII	04-VIII	15-VIII	23-VIII	30-VIII	06-IX	12-IX	21-IX	28-IX	04-X
$7.5\text{-}1.0\times10^3$												
$1.0\text{-}x.5\times10^3$												
$2.5\text{-}5.0\times10^3$		1344			27.4			68.5			90.6	
$5.0\text{-}7.5\times10^3$		0	34.2		0			0			0	
$7.5\text{-}1.0\times10^4$		2352	0	49.8	82.2			137	43.4		0	36.9
$1.0\text{-}2.5\times10^4$	978	7728	342	99.6	137	30.7	445	411	0	860	227	185
$2.5\text{-}5.0\times10^4$	815	9408*	445	99.6	137	153*	247	342	911	1720	544*	517
$5.0\text{-}7.5\times10^4$	815	3024	445	99.6	82.2	30.7	297	753	521	860	317	73.8
$7.5\text{-}1.0\times10^5$	815	2352	650	99.6	54.8	92.1	396	411	651	348	45.3	148
$1.0\text{-}2.5\times10^5$	1630*	4702	616	398*	82.2	123	742*	1096*	1693*	3480*	362	886*
$2.5\text{-}5.0\times10^5$	1304	3360	1265*	49.8	27.4	61.4	693	890	1259	1376	272	480
$5.0\text{-}7.5\times10^5$	489	336	479	99.6	54.8	153*	396	274	1042	0	181	517
$7.5\text{-}1.0\times10^6$	0	0	239		27.4	30.7	148	137	304	172	45.3	369
$1.0\text{-}2.5\times10^6$	652	336					148	68.5				111

Table 13 (continued)

Volume (μm^3)	1978											$\bar{X}$	%
	12-X	18-X	25-X	01-XI	09-XI	17-XI	23-XI	30-XI	07-XII	22-XII	29-XII		
$7.5-1.0\times10^3$													
$1.0-2.5\times10^3$													
$2.5-5.0\times10^3$					58.0	104*		29.9		1041		135	2.11
$5.0-7.5\times10^3$				147	116	0		0		0		46.2	0.721
$7.5-1.0\times10^4$	92.4		41.7	1174	0	0	230	29.9		0	167	132	2.06
$1.0-2.5\times10^4$	862	133	417	3670*	319*	104*	575	239*	2009*	2776	335	1046	16.3
$2.5-5.0\times10^4$	1078*	76.8	500*	2129	232	69.2	575	179	1361	5899*	1090*	1133	17.7
$5.0-7.5\times10^4$	400	134	292	1174	116	104*	460	29.9	972	1735	586	625	9.75
$7.5-1.0\times10^5$	246	96.0	208	367	116	0	805	29.9	454	347	83.7	470	7.33
$1.0-2.5\times10^5$	1047	365*	417	954	145	34.6	920*	89.7	1555	347	753	1329	20.7
$2.5-5.0\times10^5$	431	269	167	220	0	34.6	575	209	713	1041	670	862	13.4
$5.0-7.5\times10^5$	277	134	41.7	73.4	0		0	29.9	259	0	83.7	324	5.05
$7.5-1.0\times10^6$	123	19.2	41.7		0		115	29.9	194	347		137	2.14
$1.0-2.5\times10^6$	216	19.2	41.7		29.0			29.9	194			159	2.48
$2.5-5.0\times10^6$												10.7	0.167
$5.0-7.5\times10^6$												0.366	0.006
$7.5-1.0\times10^7$												0.366	0.006
$1.0-2.5\times10^7$												0.245	0.004
$2.5-5.0\times10^7$												0.366	0.006

Table 14. Abundance of discarded houses of *Oikopleura longicauda* in surface water and sediment traps, their calculated sedimentation rate, sinking velocity and the ratio of total pigments to dry weight of deposited material in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

Date	STANDING CROP ($No \cdot m^{-3}$)	TRAPPING RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	% SEDIMENTATION	SEDIMENTATION RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	SINKING VELOCITY ($m \cdot day^{-1} \pm SD$)	TOTAL PIGMENTS DRY WEIGHT ($mg \cdot g^{-1}$)
09-XII-77	2500	58800 ± 2120	46.8	27500 ± 992	0.908 ± 0.0316	0.135
16-XII-77	17000	206500 ± 3530	20.8	42900 ± 734	3.957 ± 0.0678	0.0722
23-XII-77	12200	130900 ± 67900	9.00	11800 ± 6110	10.355 ± 5.34	0.0372
30-XII-77	130000	1740000 ± 14100	20.8	362000 ± 2930	3.591 ± 0.0272	0.828
06-I-78	8500	201000 ± 5660	71.1	143000 ± 4020	0.595 ± 0.0159	0.262
27-I-78	3000	46400 ± 6930	18.5	8580 ± 1280	3.908 ± -	0.0371
07-II-78	26500	414000 ± 93300	42.8	177000 ± 39900	1.535 ± 0.346	0.0730
23-II-78	3500	163000 ± 13400	51.4	83800 ± 6890	0.418 ± 0.0344	0.347
07-III-78	14500	388000 ± 38100	17.6	68300 ± 6700	2.136 ± 0.213	0.166
23-III-78	14000	229000 ± 33900	19.8	45300 ± 6710	3.121 ± 0.464	0.0860
06-IV-78	9500	183000 ± 12000	5.60	10200 ± 672	9.268 ± 0.605	0.0914
13-IV-78	61500	951000 ± 238000	23.3	152000 ± 55400	2.863 ± 0.717	0.0877
21-IV-78	5000	240000 ± 33900	24.7	59300 ± 8370	0.850 ± 0.120	0.375

Table 14 (continued)

Date	STANDING CROP ($No \cdot m^{-3}$)	TRAPPING RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	% SEDIMENTATION	SEDIMENTATION RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	SINKING VELOCITY ($m \cdot day^{-1} \pm SD$)	TOTAL PIGMENTS DRY WEIGHT ($mg \cdot g^{-1}$)
28-IV-78	-	310000 ± -	46.7	145000 ± -	-	0.310
05-V-78	7500	273000 ± 28300	15.6	42600 ± 4410	1.769 ± 0.181	0.260
11-V-78	49500	553000 ± 44500	2.10	11600 ± 934	42.714 ± 3.43	0.0235
19-V-78	27000	1140000 ± 74200	33.2	378000 ± 24600	0.717 ± 0.0467	0.694
25-V-78	10500	225000 ± 42400	32.4	72900 ± 13700	1.466 ± 0.275	0.379
01-VI-78	6000	337000 ± 23300	59.3	200000 ± 138000	0.300 ± 0.0215	1.067
06-VI-78	16500	365000 ± 41000	48.5	177000 ± 19900	0.938 ± 0.105	0.276
15-VI-78	65000	709000 ± 101000	5.10	36100 ± 5150	18.157 ± 2.61	0.0889
22-VI-78	53000	875000 ± 20500	36.8	322000 ± 7540	1.647 ± 0.0383	0.0955
30-VI-78	13000	439000 ± 20500	28.7	126000 ± 5880	1.031 ± 0.0491	0.236
07-VII-78	29500	395000 ± 29700	28.0	111000 ± 8320	2.682 ± 0.189	0.125
14-VII-78	22000	441000 ± 14800	11.3	49800 ± 1670	4.407 ± 0.144	0.0946
21-VII-78	20000	222000 ± 16300	8.20	18200 ± 1340	10.988 ± 0.802	0.0685
28-VII-78	8500	247000 ± 4240	24.4	60300 ± 1030	1.410 ± 0.0232	0.290

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Table 14 (continued)

Date	STANDING CROP ($No \cdot m^{-3}$)	TRAPPING RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	% SEDIMENTATION	SEDIMENTATION RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	SINKING VELOCITY ($m \cdot day^{-1} \pm SD$)	TOTAL PIGMENTS DRY WEIGHT ($mg \cdot g^{-1}$)
04-VIII-78	1000	27100 ± 17000	16.8	4550 ± 2860	2.732 ± 1.71	0.0805
15-VIII-78	2500	115000 ± 42800	29.0	33300 ± 12400	0.807 ± 0.302	0.185
23-VIII-78	1600	35400 ± 9540	16.5	5840 ± 1570	2.836 ± 0.764	0.151
30-VIII-78	4800	88900 ± 10700	21.1	18700 ± 2260	2.573 ± 0.312	0.125
06-IX-78	10000	136000 ± 25400	22.0	29900 ± 5590	3.750 ± 0.113	0.0980
12-IX-78	9000	350000 ± 21200	26.1	91300 ± 5533	1.069 ± 0.0188	0.329
21-IX-78	13500	313000 ± 19100	15.1	47300 ± 2880	2.854 ± 0.173	0.152
28-IX-78	16000	461000 ± 0	29.0	134000 ± 0	1.196 ± 0	0.254
04-X-78	10500	263000 ± 7070	19.4	51000 ± 1370	2.057 ± 0.0546	0.275
12-X-78	10000	350000 ± 21200	23.7	82900 ± 5020	1.207 ± 0.0717	0.364
18-X-78	5000	24400 ± 46700	35.3	8610 ± 16500	0.592 ± 0.113	0.458
25-X-78	1200	23300 ± 1060	18.7	4360 ± 198	2.749 ± 0.124	0.164
01-XI-78	2000	73900 ± 6360	26.0	19200 ± 1650	1.042 ± 0.090	0.138
09-XI-78	5600	289000 ± 9900	41.7	120000 ± 4130	0.463 ± 0.0152	0.540

Table 14 (continued)

Date	STANDING CROP ($No \cdot m^{-3}$)	TRAPPING RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	% SEDIMENTATION	SEDIMENTATION RATE ($No \cdot m^{-2} \cdot day^{-1} \pm SD$)	SINKING VELOCITY ($m \cdot day^{-1} \pm SD$)	TOTAL PIGMENTS DRY WEIGHT ($mg \cdot g^{-1}$)
17-XI-78	5000	243000 ± 26200	33.2	80700 ± 8700	0.620 ± 0.0660	0.255
23-XI-78	17000	222000 ± 17700	33.4	74100 ± 5910	2.293 ± 0.182	0.190
30-XI-78	5000	120000 ± 2830	33.6	40300 ± 951	1.241 ± 0.0292	0.221
07-XII-78	10000	253000 ± 52300	10.0	25300 ± 5230	4.040 ± 0.834	0.183
22-XII-78	1200	117000 ± 2120	8.70	10200 ± 184	1.170 ± 0.0162	0.0772
29-XII-78	24000	429000 ± 82000	15.6	66900 ± 12800	3.653 ± 0.699	0.160
N	46	47	47	47	46	47
$\bar{X}$	17100	333000	26.1	89000	3.71	0.218
SD	22800	313000	14.6	82000	6.74	0.188
CV	1.33	0.942	0.560	1.09	1.82	0.860

Table 15. Size and sinking velocity of discarded *Oikopleura* houses and the ratio of total pigment to dry weight of material collected in sediment traps in Kaneohe Bay during the priod from June to December 1978.

Date	Size of House (mm)	Sinking Velocity ($m \cdot day^{-1}$)	Total Pigments Dry Weight ($mg \cdot g^{-1}$)
1978			
22-VI	3	193	0.102
	4	238	0.0893
	2	167	0.0893
	4	168	0.0893
12-IX	3	84.9	0.357
	3	65.6	0.302
21-IX	3	233	0.153
	4	289	0.151
28-IX	4	304	0.220
	3	186	0.280
12-X	3	133	0.391
	2	93.9	0.331
18-X	5	103	0.444
	3	206	0.472
25-X	3	198	0.197
	3	197	0.131
17-XI	3	114	0.246
	3	176	0.264
23-XI	2	113	0.205
	3	156	0.175
30-XI	3	136	0.204
	3	143	0.239
07-XII	4	246	0.207
	3	197	0.158
22-XII	3	405	0.0826
	2	362	0.0719
29-XII	3	188	0.160
	6	199	0.161
N		28	28
$\bar{X}$		189	0.213
SD		79.8	0.109
CV		0.422	0.513

Table 16. Regression analysis of four measurements made in Kaneohe Bay during the period from December 1977 to December 1978.

Measurement	Slope	Intercept	r
DW vs			
% AFDW	-0.3488	1.868	0.868
Organic Carbon	-0.2567	1.756	0.849
Organic Nitrogen	-0.6343	0.8433	0.828
Total Pigment vs			
Chlorophyll *a*	-0.7060	1.8817	0.600

Table 17. Sedimentation rate for dry weight, ash free dry weight, organic carbon, and organic nitrogen, corrected by freshwater runoff in Kaneohe Bay during the period from December 1977 to December 1978.

Date	Effect of Runoff	DW	AFDW	Organic Carbon	Organic Nitrogen
09-XII-77	2.86	1.60	0.707	0.404	0.440
16-XII-77	0	4.33	1.01	0.309	0.0307
23-XII-77	0	3.82	0.539	0.229	0.0254
30-XII-77	0	4.44	1.04	0.361	0.0416
06-I-78	1.43	1.19	0.972	0.779	0.0847
27-I-78	2.85	4.42	0.955	0.324	0.0323
07-II-78	0.57	2.66	1.08	0.545	0.0544
23-II-78	0.28	2.17	1.04	0.377	0.0608
07-III-78	1.71	7.62	1.59	0.443	0.0451
23-III-78	0.28	9.49	2.14	0.666	0.103
06-IV-78	0.28	5.80	0.666	0.171	0.0237
13-IV-78	0.85	7.00	1.77	0.144	0.0867
21-IV-78	1.71	2.39	0.633	0.356	0.0456
27-IV-78	3.16	9.67	4.25	1.20	0.0599
05-V-78	4.61	1.74	0.335	0.204	0.0245
11-V-78	12.1	4.54	0.395	0.163	0.0138
19-V-78	19.6	2.84	0.941	0.516	0.0551
25-V-78	11.5	2.80	0.911	0.323	0.0326
01-VI-78	3.48	1.44	0.774	0.777	0.0847

Table 17 (continued)

Date	Effect of Runoff	DW	AFDW	Organic Carbon	Organic Nitrogen
06-VI-78	2.02	5.75	2.60	0.666	0.0514
15-VI-78	0.29	8.38	0.923	0.300	0.0255
22-VI-78	0.29	9.85	3.56	1.20	0.138
30-VI-78	0.29	10.1	2.99	0.627	0.0511
07-VII-78	0.29	8.09	2.35	0.641	0.0555
14-VII-78	0	12.0	1.91	0.611	0.0580
21-VII-78	0.28	18.0	2.44	0.520	0.0428
28-VII-78	0.28	4.26	1.12	0.446	0.0438
04-VIII-78	1.14	4.43	0.899	0.258	0.0250
15-VII-78	2.28	2.42	0.724	0.404	0.0494
23-VIII-78	1.14	3.23	0.622	0.263	0.0258
30-VIII-78	1.99	5.11	1.20	0.465	0.0418
06-IX-78	2.56	7.06	1.72	0.354	0.0266
12-IX-78	0.28	3.94	1.09	0.384	0.0485
21-IX-78	2.27	10.7	2.03	0.491	0.0538
28-IX-78	1.14	4.50	1.34	0.560	0.0571
04-X-78	0.28	3.25	0.725	0.255	0.0287
12-X-78	1.70	3.02	0.775	0.404	0.0660
18-X-78	3.42	3.78	1.32	0.466	0.0458
25-X-78	47.9	2.36	0.515	0.158	0.0255
01-XI-78	92.7	0.422	0.116	0.0241	0.00239

Table 17 (continued)

Date	Effect of Runoff	DW	AFDW	Organic Carbon	Organic Nitrogen
09-XI-78	48.8	1.81	0.724	0.372	0.0343
17-XI-78	4.37	5.39	1.79	0.399	0.0299
23-XI-78	5.24	5.25	1.75	0.328	0.0333
30-XI-78	6.39	2.56	0.859	0.492	0.0520
07-XII-78	4.64	3.16	0.472	0.0614	0.0121
22-XII-78	2.32	10.9	1.52	0.308	0.0274
29-XII-78	1.16	2.61	0.503	0.242	0.0199
$\bar{X}$	6.44	5.15	1.28	0.425	0.0451
SD	16.3	3.52	0.854	0.239	0.0246
CV	2.53	0.682	0.665	0.562	0.546

le 18. Summary for the sedimentation rate of total fecal pellets, discarded houses of *Oikopleura longicauda*, phytoplankton, detritus and total organic carbon, and their % contribution, to total sedimentation.

Groups	Sedimentation	Factors	Sedimentation in Organic Carbon ($gC \cdot m^{-2} \cdot day^{-1}$)	%
al Pellets	2.77 $cm^3 \cdot m^{-2} \cdot day^{-1}$	0.02 $gC \cdot cm^{-3}$	0.0554	13.0
carded Houses	0.0859X10^6 houses$\cdot m^{-2} \cdot day^{-1}$	3 $\mu gC \cdot house^{-1}$	0.258	60.7
oplankton	0.373 mgChl.$\underline{a} \cdot m^{-2} \cdot day^{-1}$	100mgC$\cdot$mgChl.$\underline{a}^{-1}$	0.0373	8.8
ritus	-		0.0744	17.5
al			0.425	100

Table 19. Abundance of *Oikopleura longicauda* and total zooplankton collected with 333 µm and 333-35 µm mesh nets. A ratio of *Oikopleura* caught in the micro-net to those caught in the macro-net and the percent contribution of total *Oikopleura* to macrozooplankton were calculated in the two far right columns. * Numbers were excluded for calculations at the bottom.

	Macro-Net >333 µm				Micro-Net 333-35 µm				Total		Total	Micro	
Date	*Oikopleura*	%	Total	%	*Oikopleura*	%	Total	%	*Oikopleura*	%	Zooplankton	Macro	%
13-XII-77	376	3.67	2416	0.25	9870	96.3	951500	99.7	10246	1.07	953916	26.2	83.4
27-XII-77	417	5.20	1589	0.18	7590	94.8	900600	99.8	8007	0.887	902189	18.2	87.2
10-I-78	257	4.63	991	0.18	5290	95.4	559000	99.8	5547	0.990	559991	20.6	88.3
26-I-78	28.6	9.73	607	0.16	265	90.3	369300	99.8	294	0.079	369907	9.26	33.7
22-II-78	882	7.75	2281	0.59	10500	92.3	386200	99.4	11382	2.93	388481	11.9	89.0
23-III-78	135	4.40	1463	0.22	2930	95.6	647400	99.8	3065	0.472	648863	21.7	69.8
05-IV-78	24.6	100.*	865	0.18	0*	0*	479000	99.8	24.6	0.005*	479865	0*	0.28
05-V-78	159	1.76	938	0.34	8880	98.2	275600	99.7	9039	3.27	276538	55.8	92.1
05-VI-78	465	5.76	1993	0.34	7610	94.2	581300	99.7	8075	1.38	583293	16.4	84.1
29-VI-78	386	12.1	1607	0.53	2790	87.9	303300	99.5	3176	1.04	304907	7.23	72.2
28-VII-78	593	28.7	1518	0.33	1470	71.3	460700	99.7	2063	0.446	462218	2.48	69.0
29-VIII-78	221	4.78	1458	0.13	4400	95.2	1090000	99.9	4621	0.423	1091458	19.9	78.9
11-IX-78	935	13.8	1965	0.18	5860	86.2	1105000	99.8	6795	0.614	1106965	6.27	86.8
27-IX-78	540	12.5	2280	0.21	3760	87.5	1062000	99.8	4300	0.404	1064280	6.96	71.2
25-X-78	112	10.3	2093	0.13	977	89.7	1609000	99.9	1089	0.067	1611093	8.72	35.5
17-XI-78	115	10.5	3395	0.02	977	89.5	13790000	99.9	1092	0.008	13793395	8.49	25.0
30-XI-78	109	17.7	1785	0.04	508	82.3	4232000	99.9	617	0.014	4233785	4.66	26.9
28-XII-78	316	-	627	-	-	-	-	-	-	-	-	-	-
N	18	16	18	17	17	16	17	17	17	16	17	16	16
$\bar{X}$	339	9.58	1631	0.236	4299	90.3	1510346	99.8	4640	0.881	1512041	15.3	68.3
SD	1252	6.69	3237	0.152	16820	6.69	14019149	0.152	17542	0.963	14021120	12.9	23.9
$C\bar{V}$	3.69	0.699	1.98	0.644	3.91	0.074	9.28	0.0015	3.78	1.09	9.27	0.842	0.35

Table 20. Change of standing crop of discarded houses by *Oikopleura longicauda* (dH/dt), their sedimentation loss (Hs), production rate of houses (Hg), biomass of *Oikopleura longicauda* (B), house production rate per *Oikopleura longicauda* (Hg/B) and fecal pellet production per house (Fs/B). All units are per day except as indicated.

Date	dH/dt	Hs	Hg	B ($No \cdot m^{-2}$)	Hg/B	Fs/Hg
13-XII-77						
	12600	54100	66700	80700	0.838	268
27-XII-77						
	4360	225000	229000	55500	4.13	51.0
10-I-78						
	-15600	63000	47300	2940	16.1	30.4
26-I-78						
	3500	112000	115000	114000	1.01	22.7
22-II-78						
	-759	65800	65000	30600	2.12	238
23-III-78						
	1240	106000	107000	90400	1.19	98.1
05-V-78						
	1420	155000	156000	80700	1.94	7.4
05-VI-78						
	8870	168000	177000	31800	5.57	32.6
29-VI-78						
	-7970	70400	62400	20600	3.03	197
28-VII-78						
	-5530	21900	16400	46200	0.354	55.3
29-VIII-78						
	4090	35700	39800	67900	0.585	114
ii-IX-78						
	2710	76100	78800	43000	1.83	88.0
27-IX-78						
	-1790	54900	53100	10900	4.88	55.5
25-X-78						
	-1580	62700	61100	10900	5.60	66.3
17-XI-78						
	5650	66500	72100	6170	11.7	33.5
30-XI-78						
N		15	15	15	15	15
$\bar{X}$		89100	89800	46100	4.1	90.5
SD		55100	57600	34400	4.4	80.9
CV		0.618	0.642	0.745	1.09	0.893

Table 21. Summary of annual supply and loss of organic carbon in the south sector of Kaneohe Bay.

Supply	Loss	Present Study		Bedford Basin	
		$gC \cdot m^{-2} \cdot year^{-1}$	%	$gC \cdot m^{-2} \cdot year^{-1}$	%
Primary Production		365	100	200	100
	Sedimentation	155	42.5	55	27.5
	Export	22	6.0	116	58.0
	Respiration	188	51.5	29	14.5

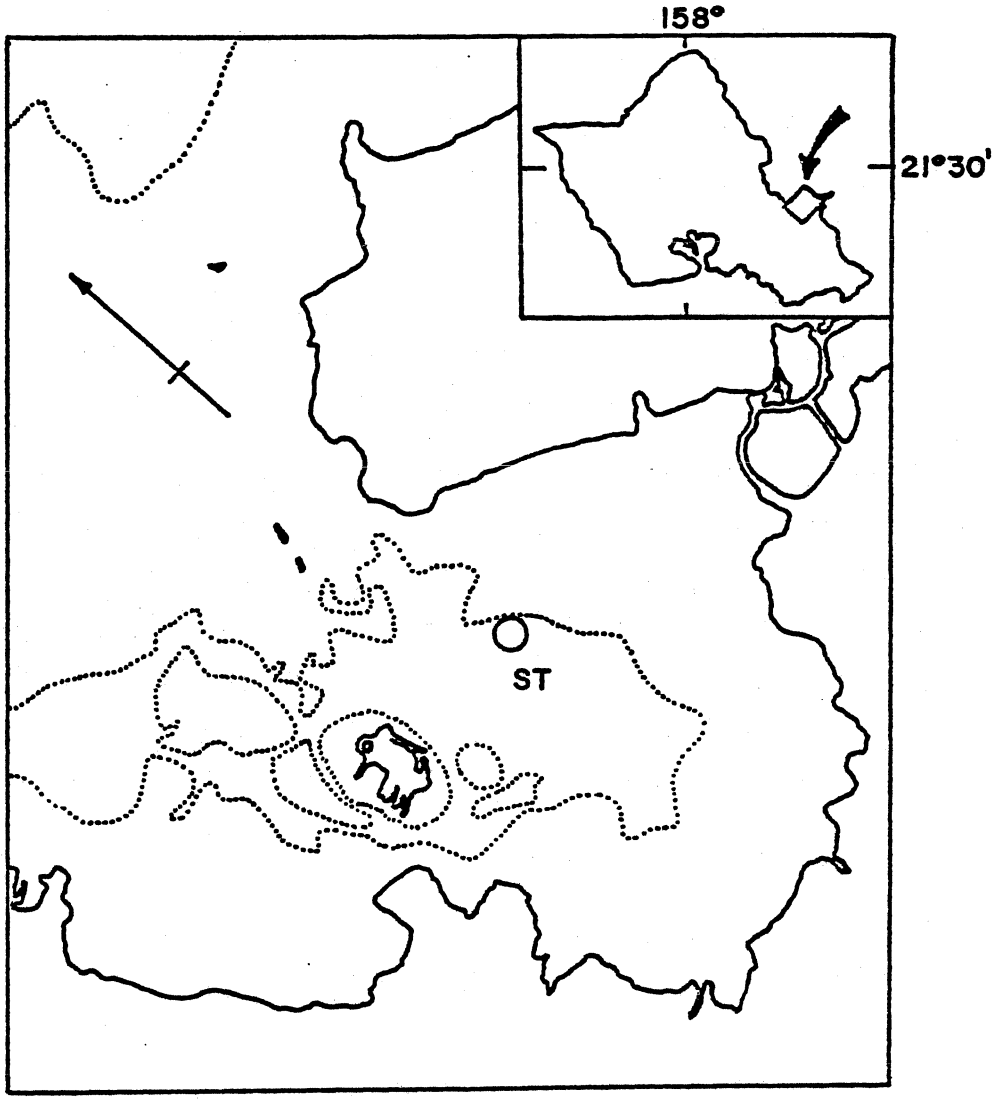


Figure 1. Map of the south sector of Kaneohe Bay and location of the station.

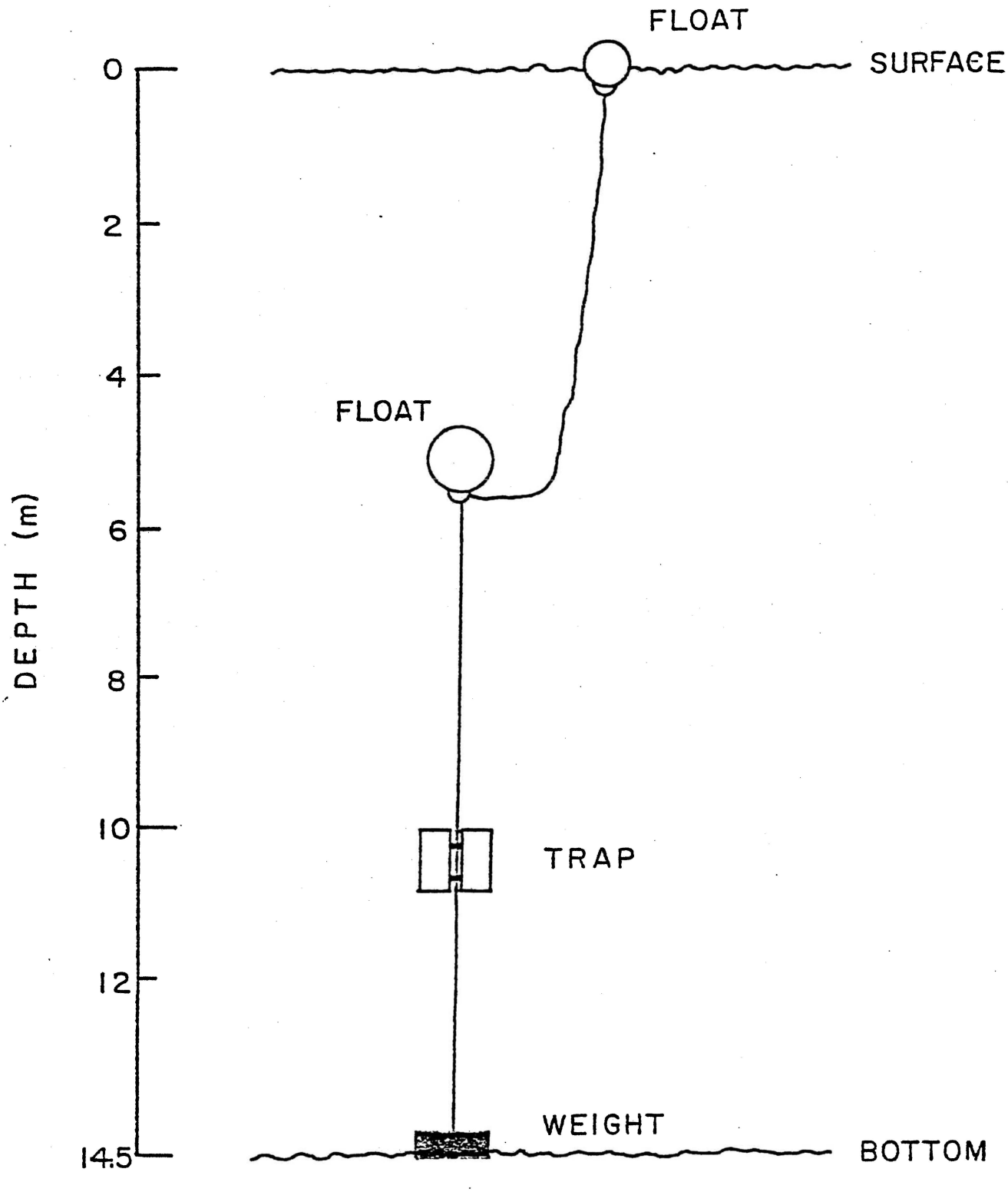


Figure 2. Sketch of sediment trap.

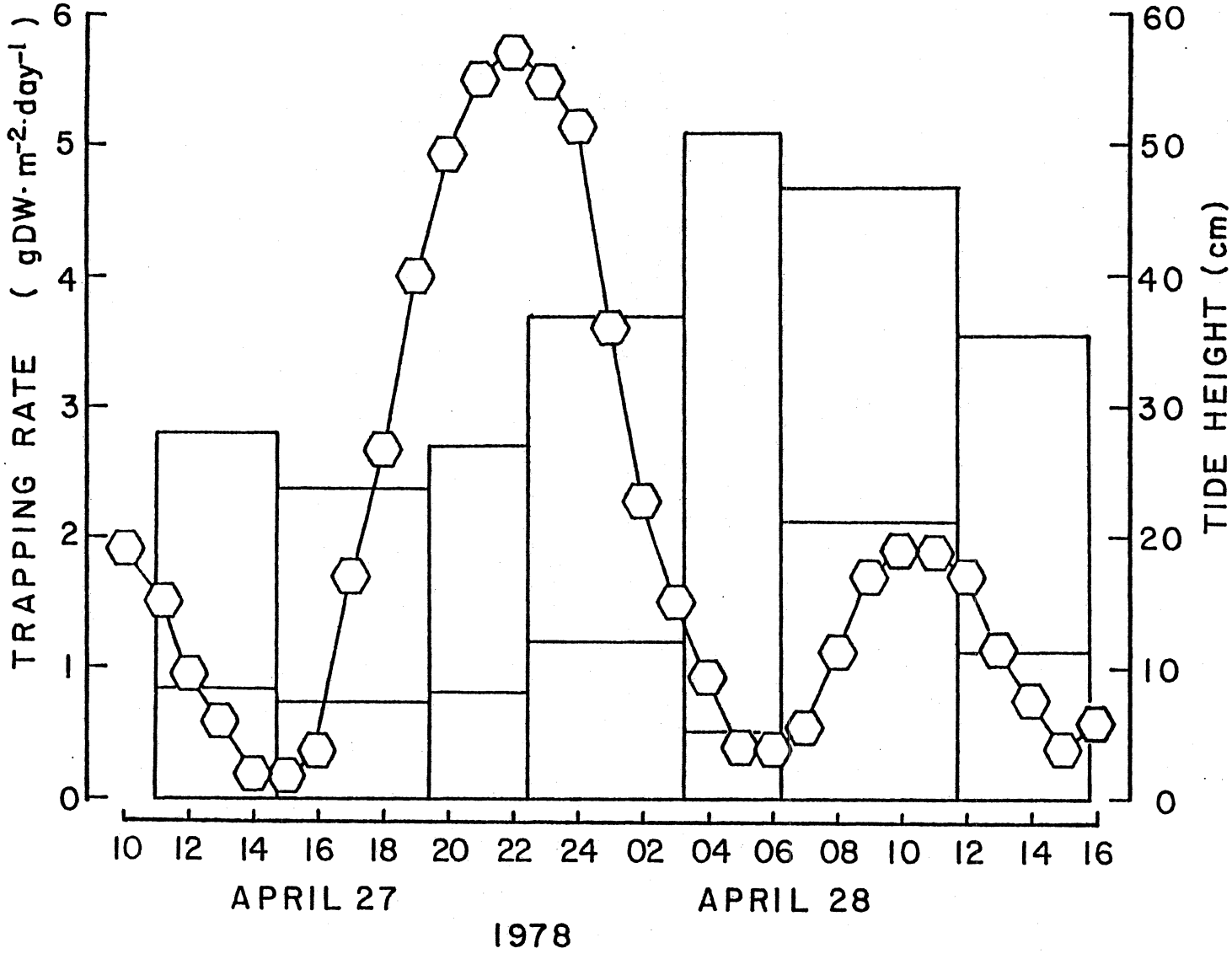


Figure 3. 24-hour observation of trapping rate ($gDW \cdot m^{-2} \cdot duration^{-1}$) during the period from April 27 to 28, 1978.

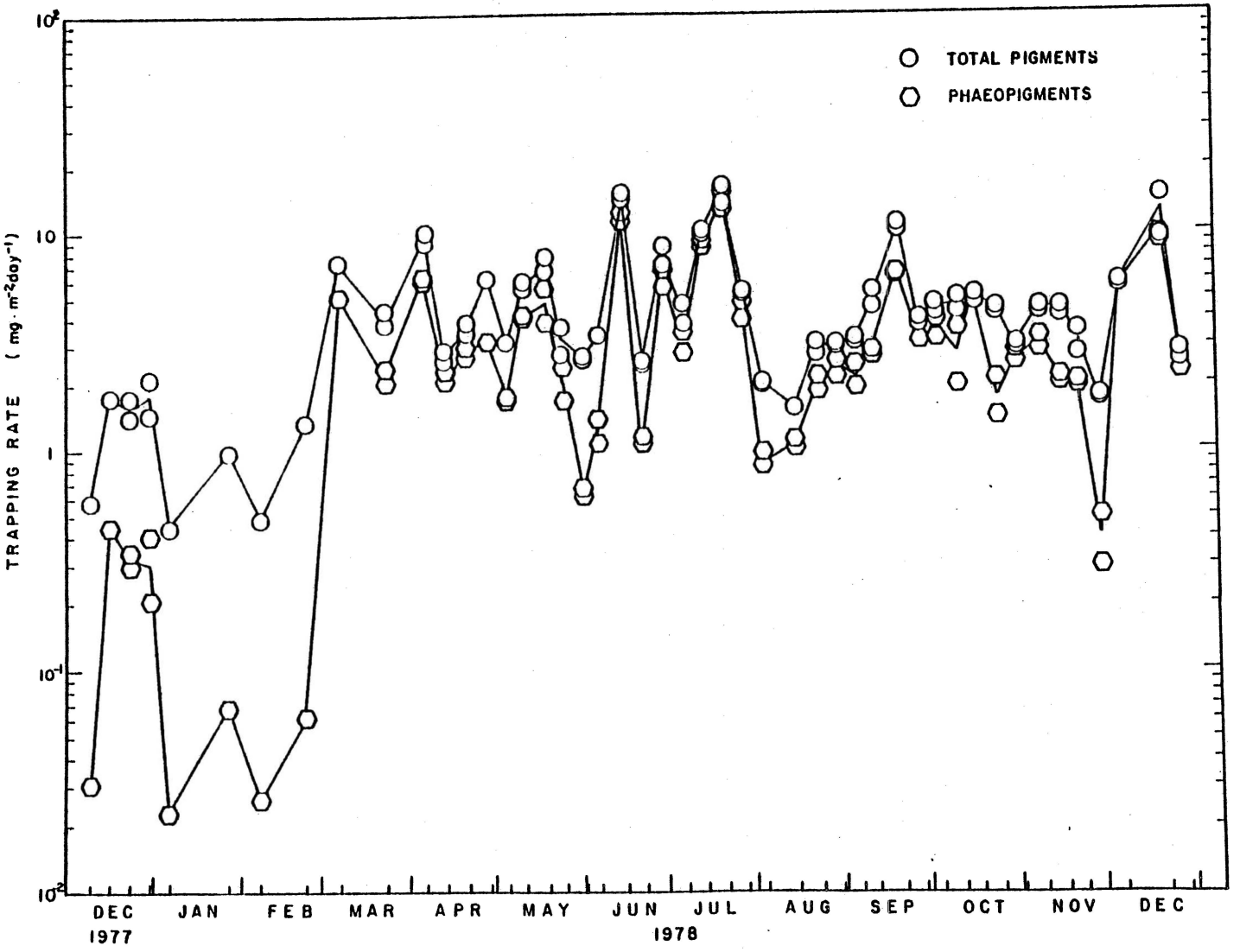


Figure 4. Trapping rates ($mg \cdot m^{-2} \cdot day^{-1}$) measured by total pigment and phaeopigments in Kaneohe Bay during the period from December 1977 to December 1978.

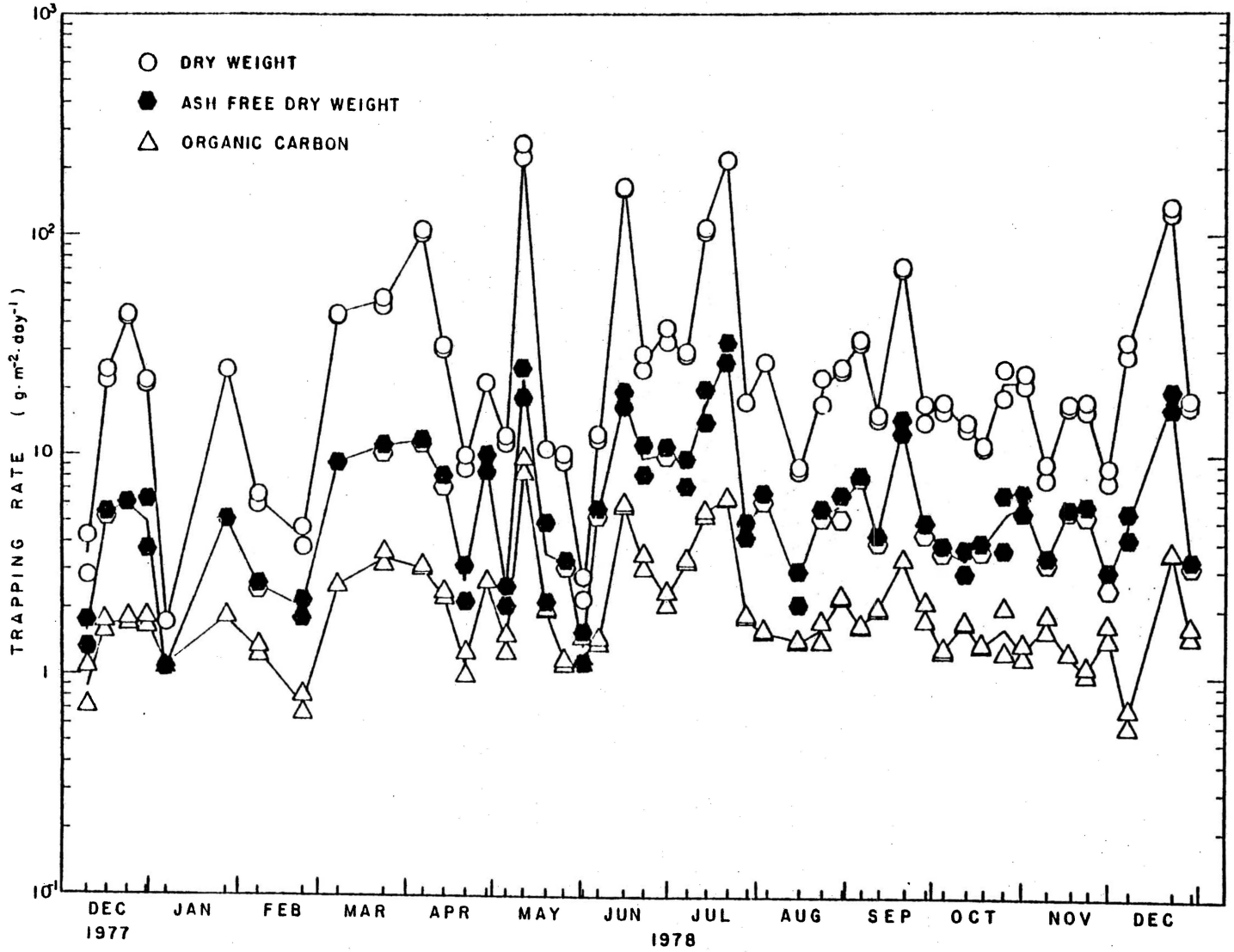


Figure 5. Trapping rates ($g \cdot m^{-2} \cdot day^{-1}$) measured by dry weight, ash free dry weight and organic carbon in Kaneohe Bay during the period from December 1977 to December 1978.

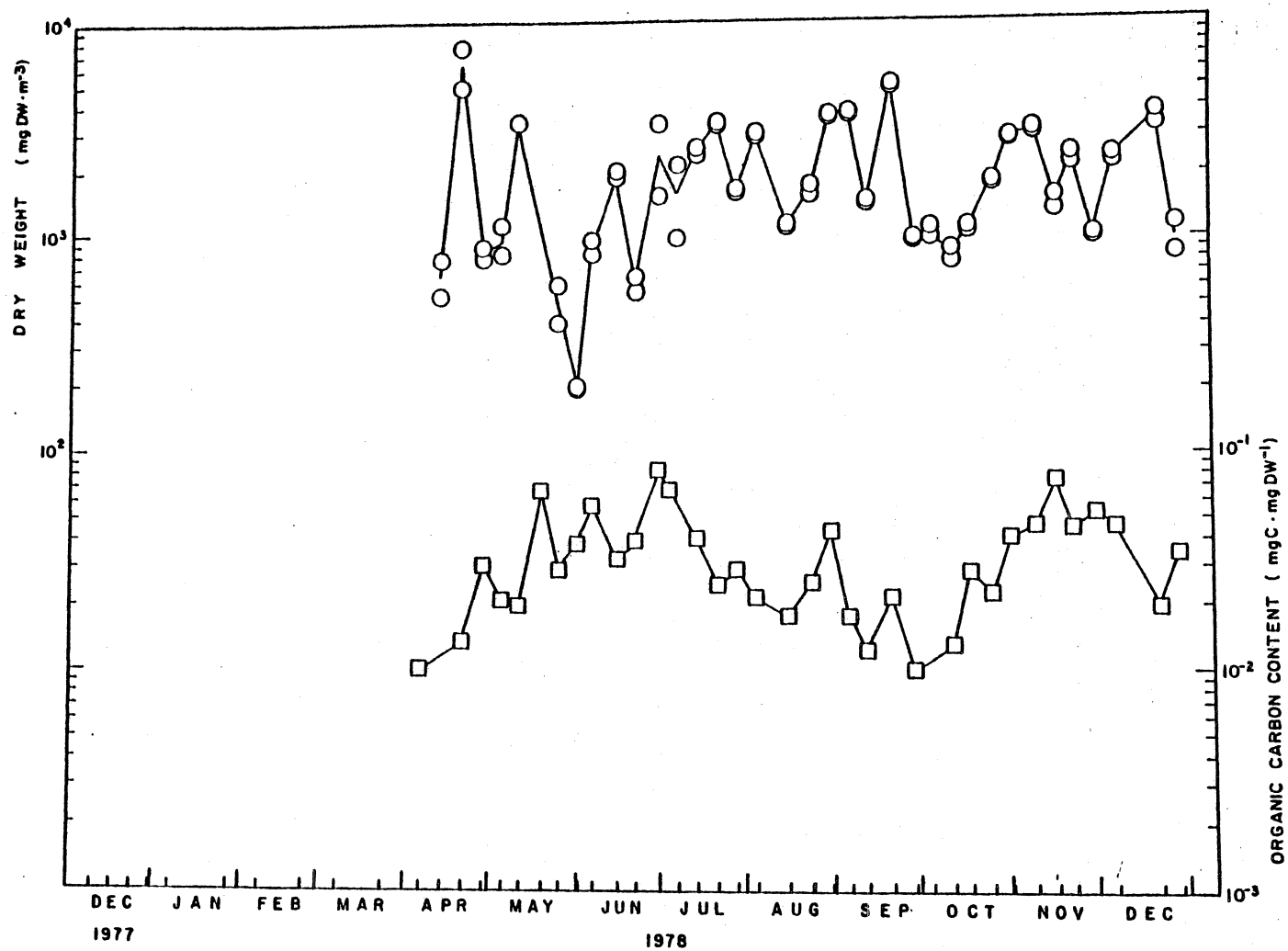


Figure 6. Dry weight of suspended particulate matter and organic carbon content of bottom sediment in Kaneohe Bay during the period from April to December 1978.

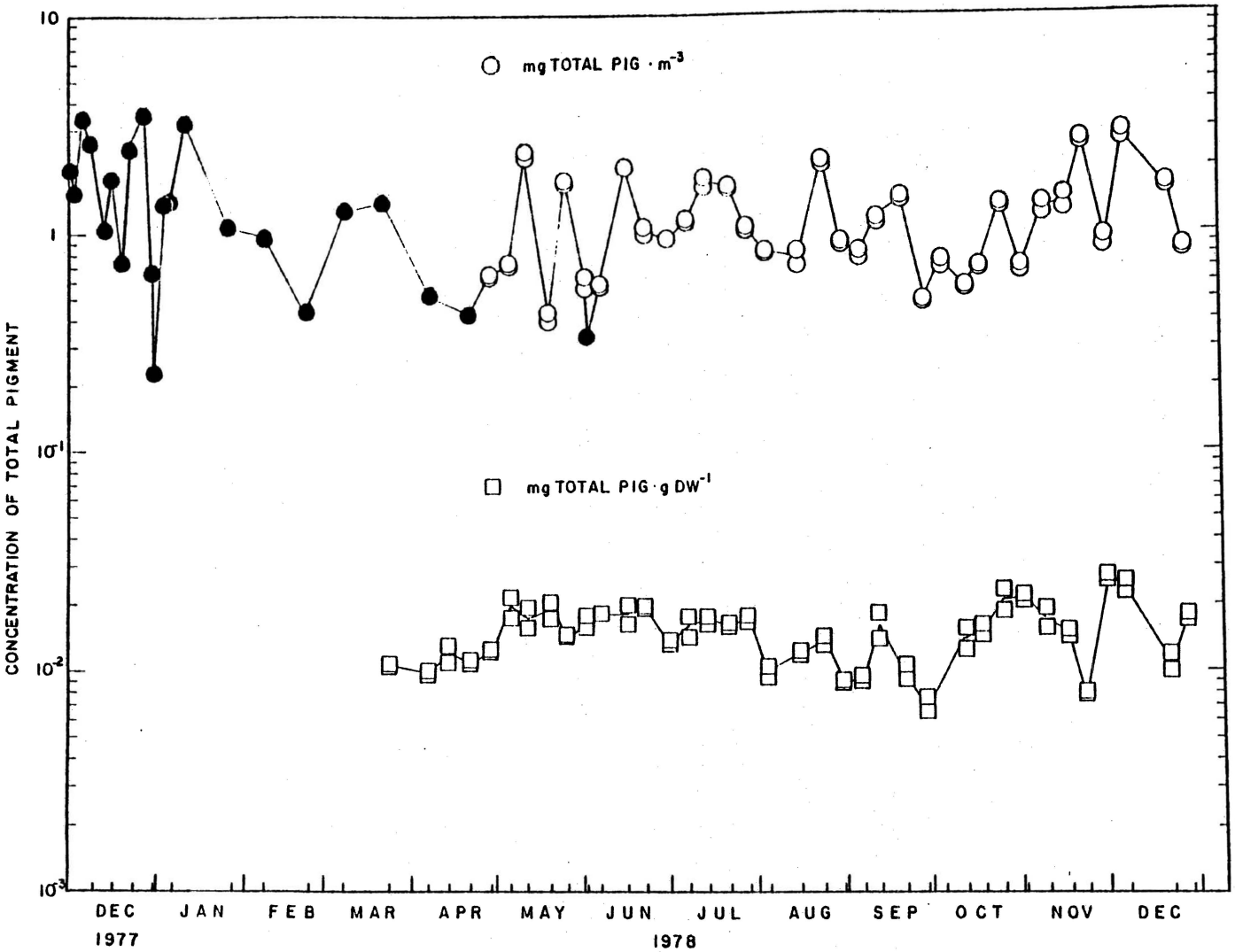


Figure 7. Total pigment content in a surface water and bottom sediments in Kaneohe Bay during the period from December 1977 to December 1978. Dark circles were measured by T. Walsh.

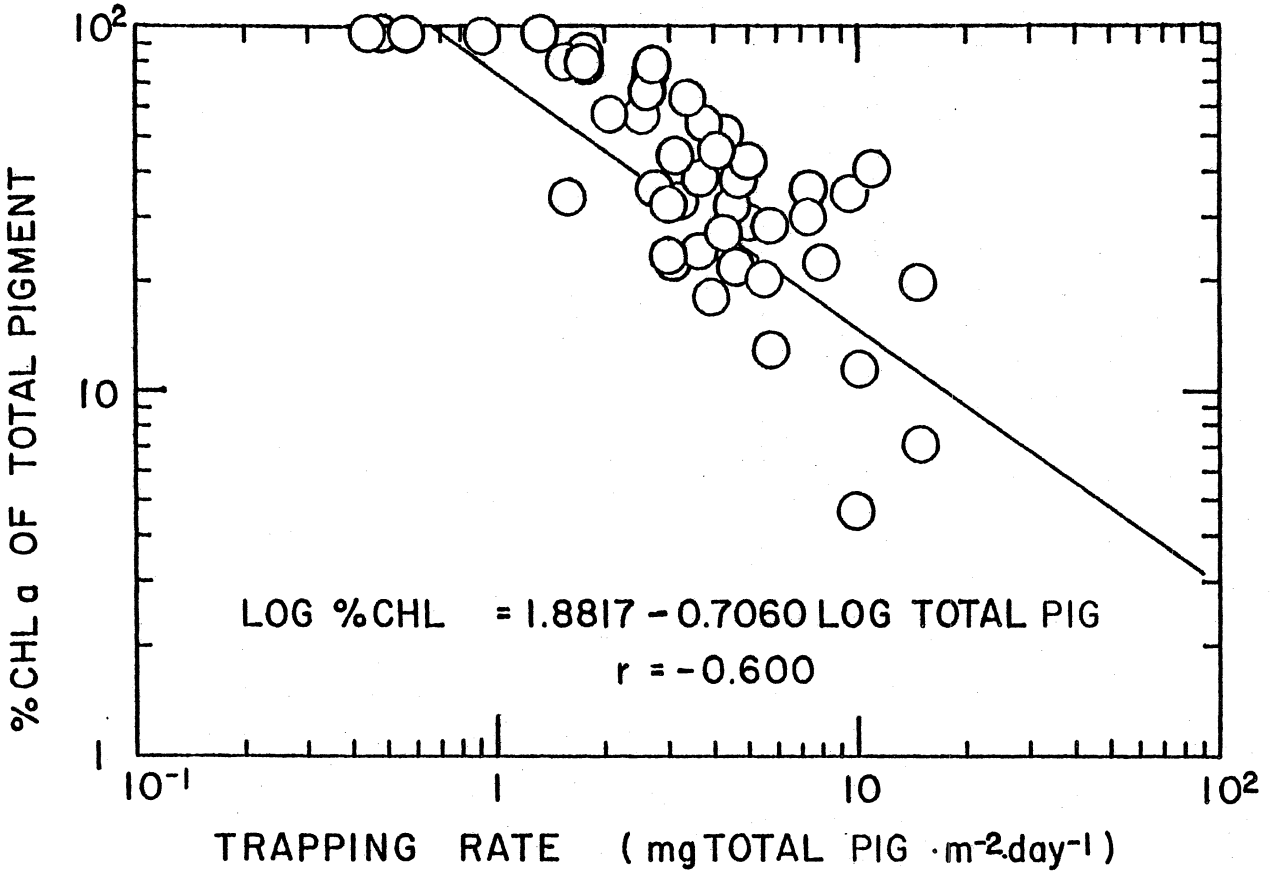


Figure 8. Relationship between trapping rate (mg Total Pig·m^{-2}·day^{-1}) and % chlorophyll *a* of total pigment.

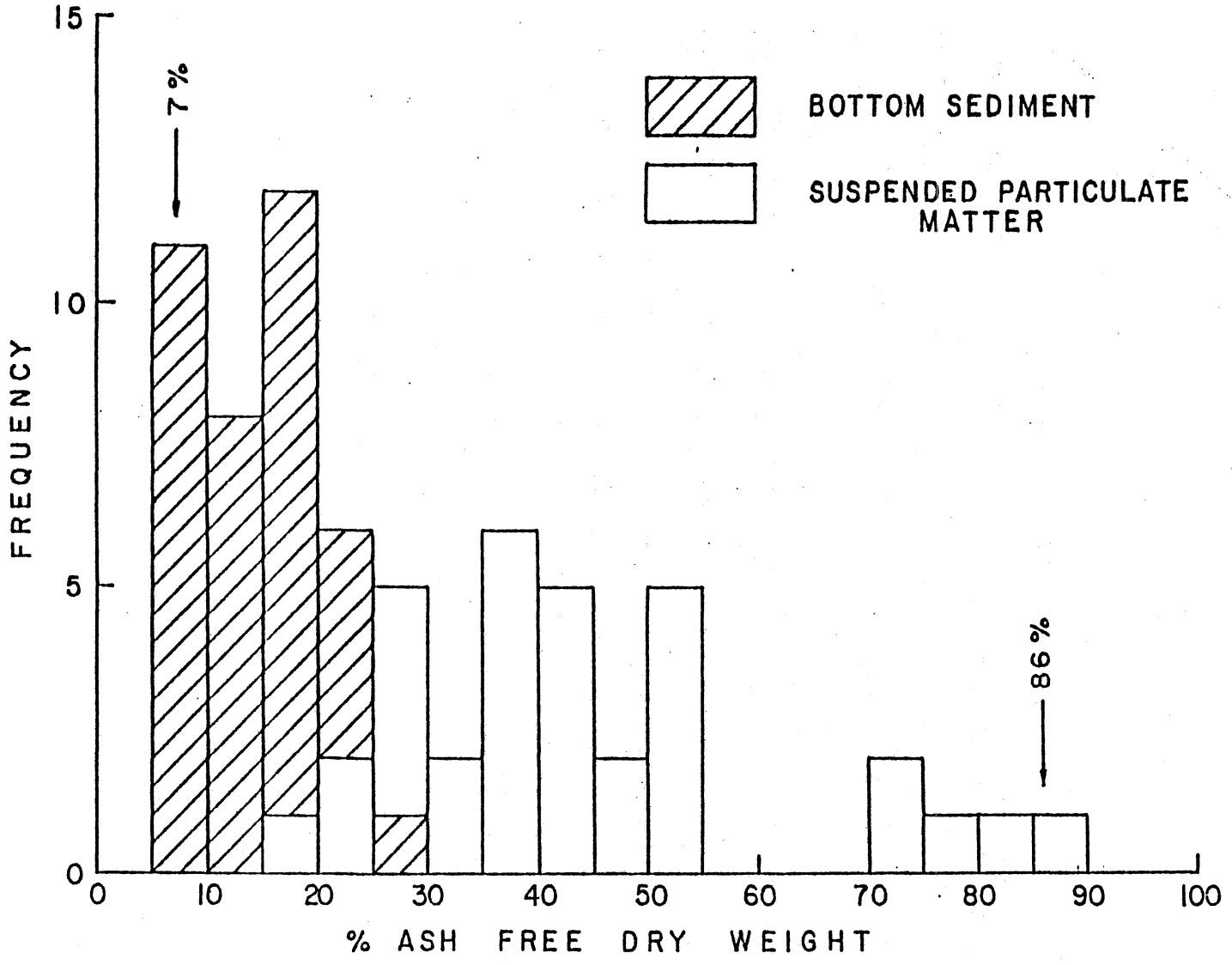


Figure 9. Frequency distribution of % ash free dry weight for bottom sediments and suspended particulate matter in Kaneohe Bay during the period from March to December 1978.

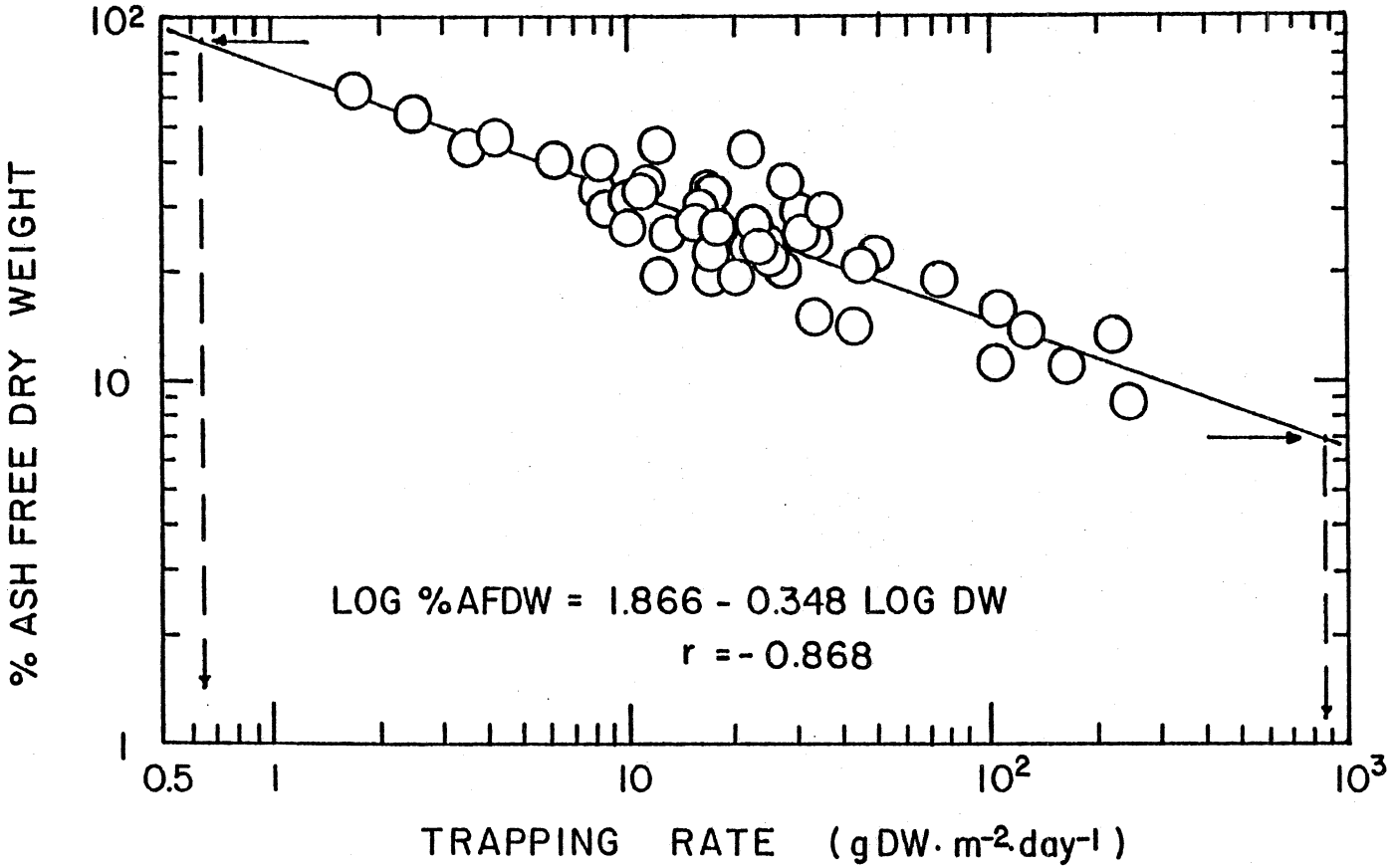


Figure 10. Relationship between trapping rate (gDW·m^{-2}·day^{-1}) and % ash free dry weight.

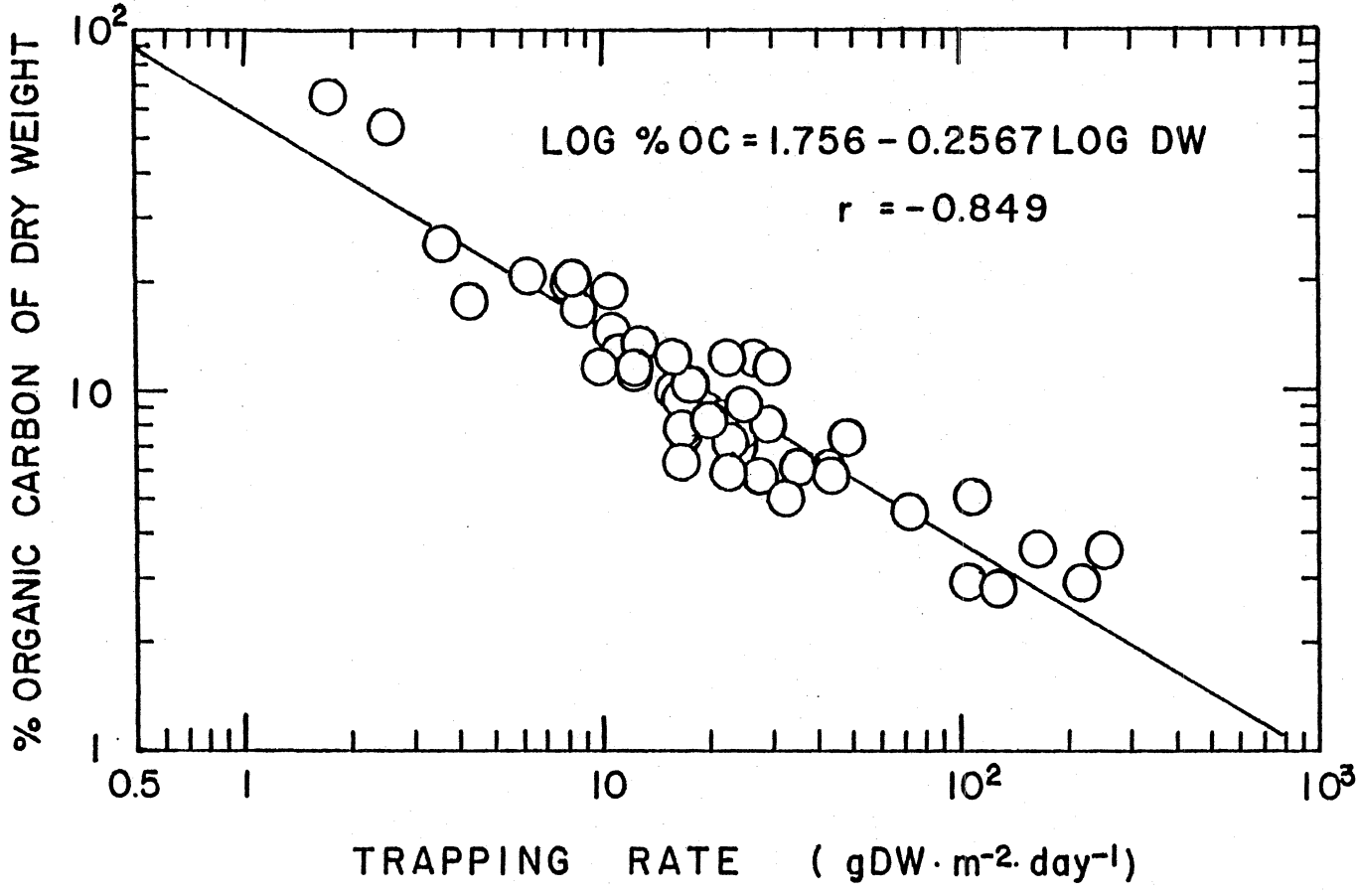


Figure 11. Relationship between trapping rate ($gDW \cdot m^{-2} \cdot day^{-1}$) and % organic carbon.

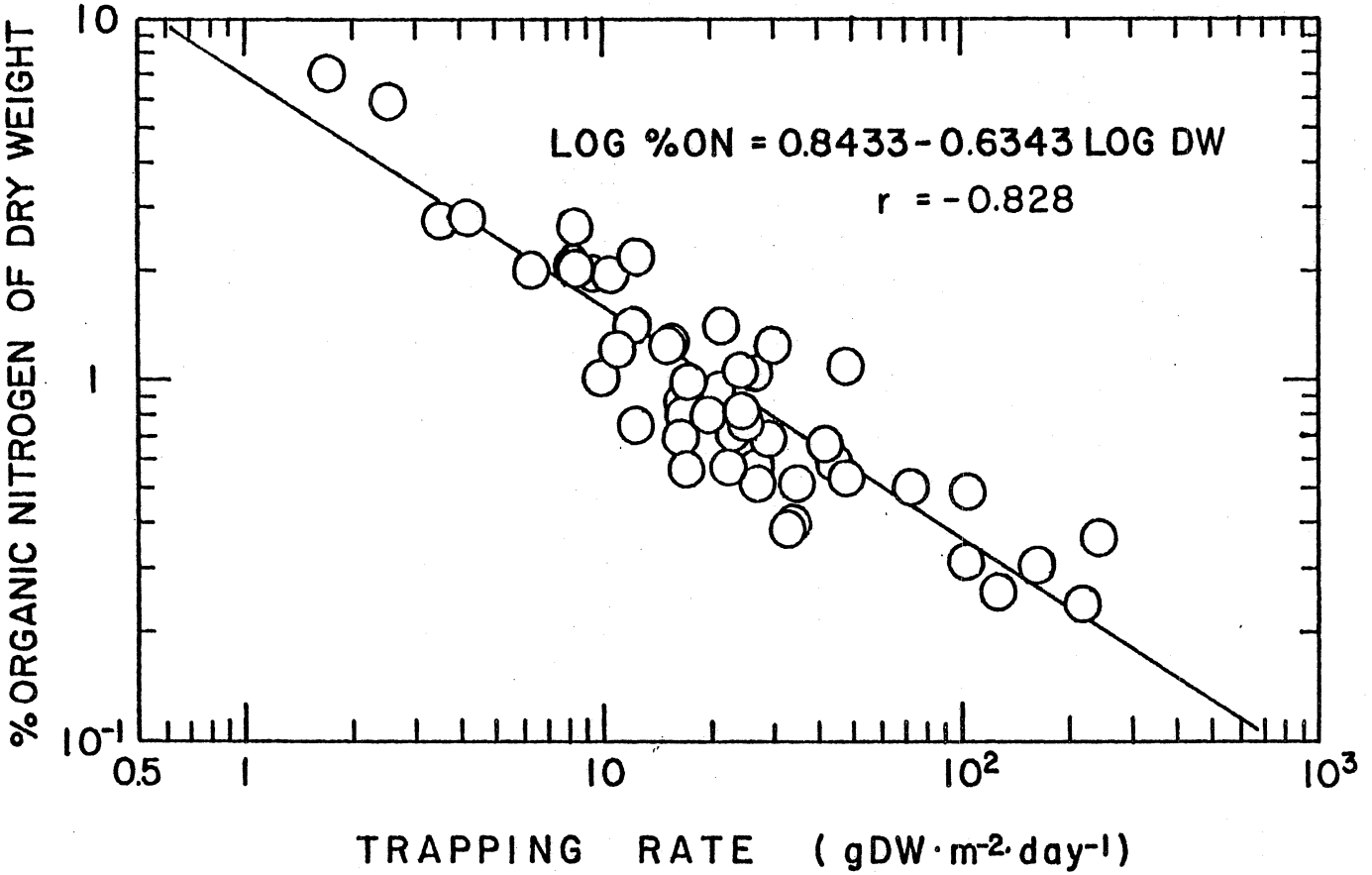


Figure 12. Relationship between trapping rate ($gDW \cdot m^{-2} \cdot day^{-1}$) and % organic nitrogen.

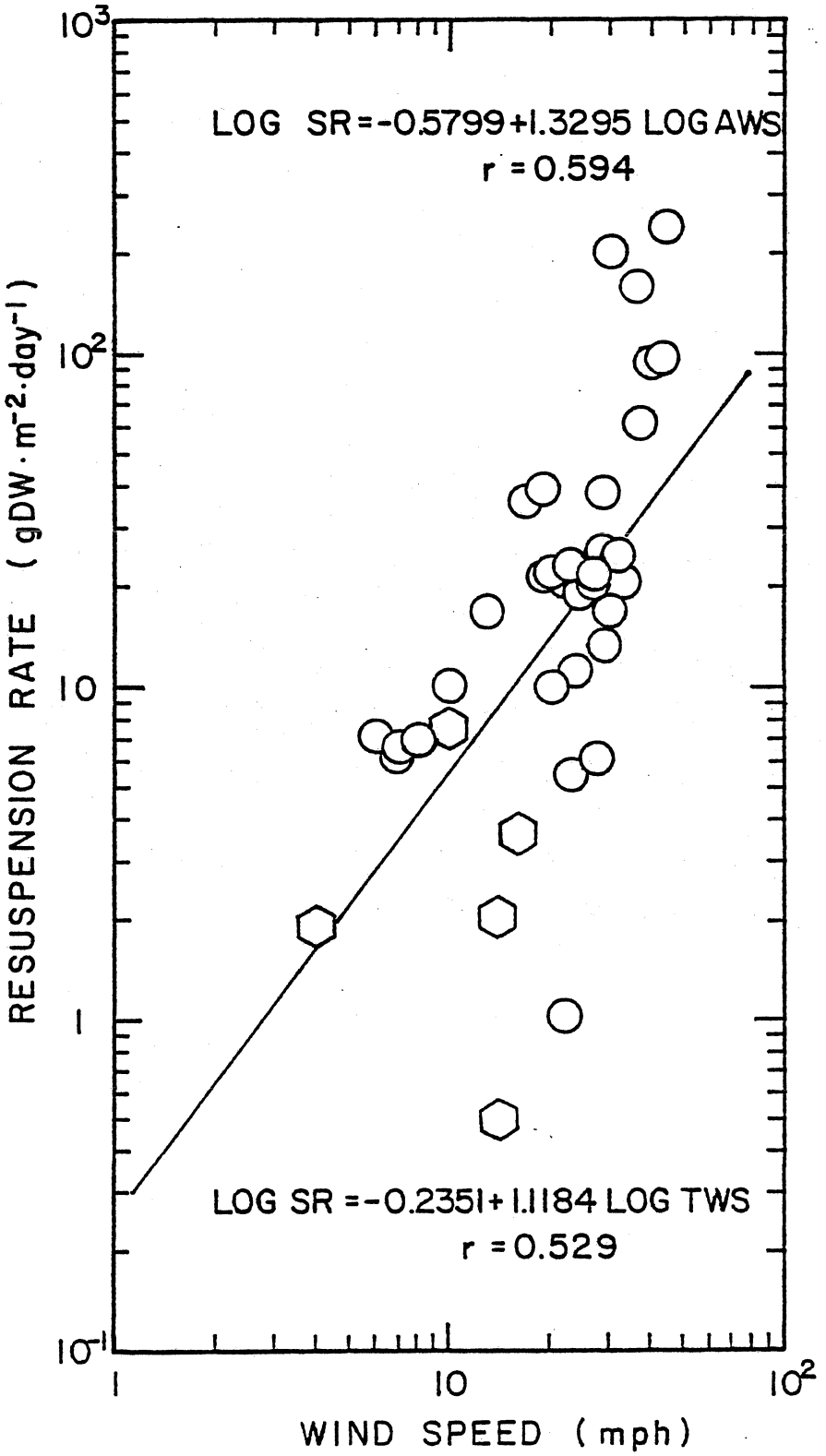


Figure 13. Calculated relationship between 3 days accumulated wind speed and resuspension rate in Kaneohe Bay during the period from December 1977 to December 1978. ○ indicates trade wind and ⬡ indicates non-trade wind.

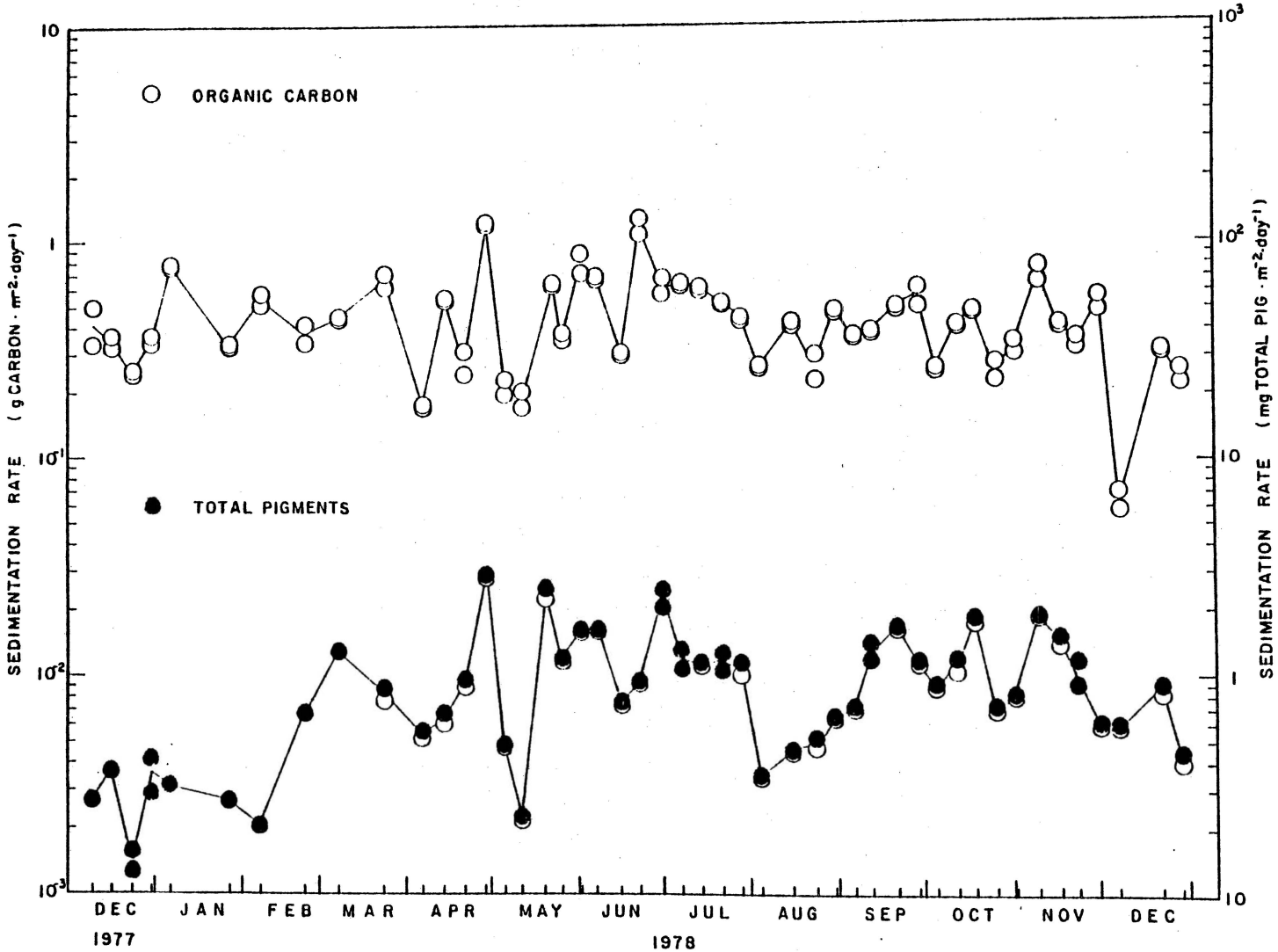


Figure 14. Sedimentation rate of organic carbon and total pigment in Kaneohe Bay during the period from December 1977 to December 1978.

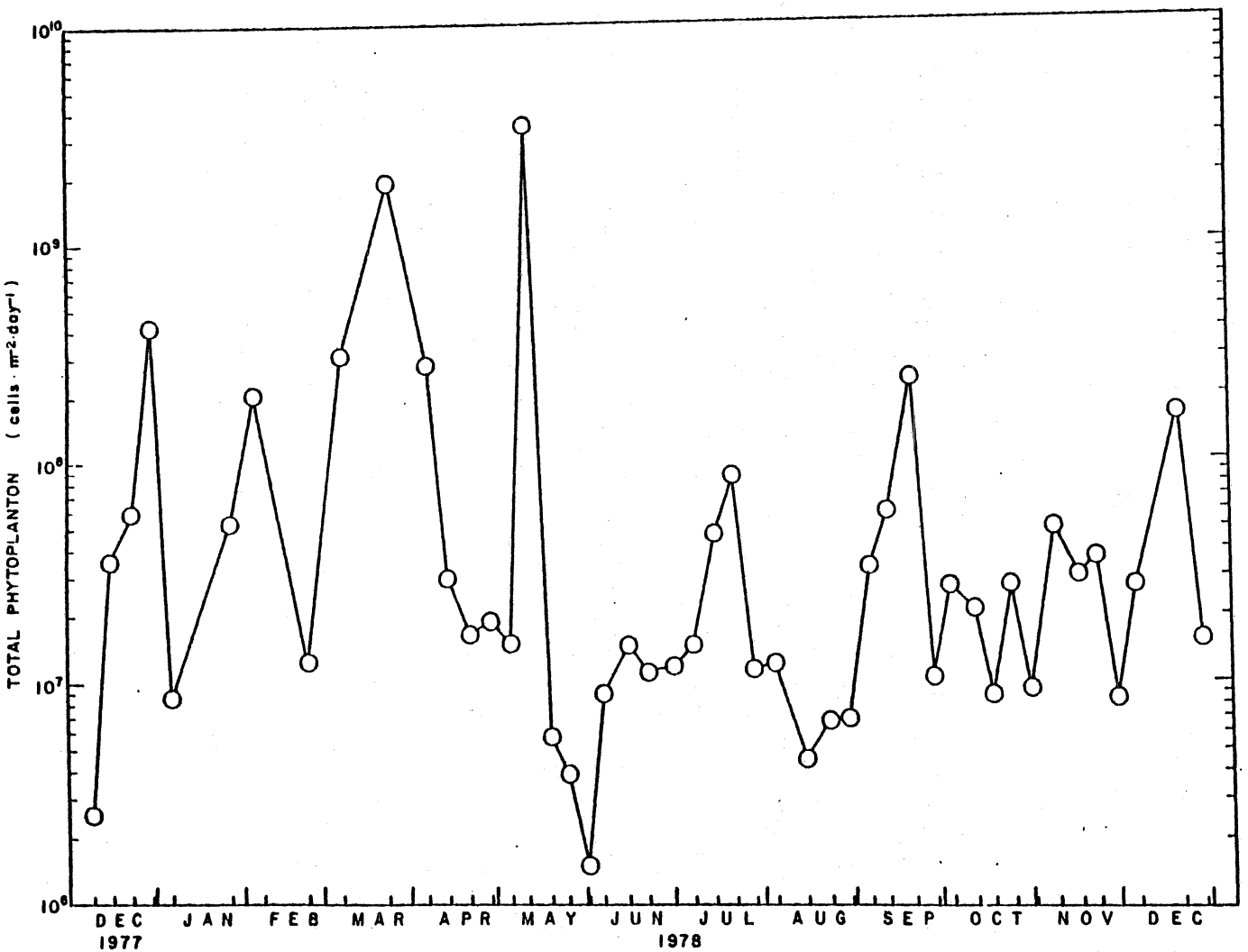


Figure 15. Total phytoplankton collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

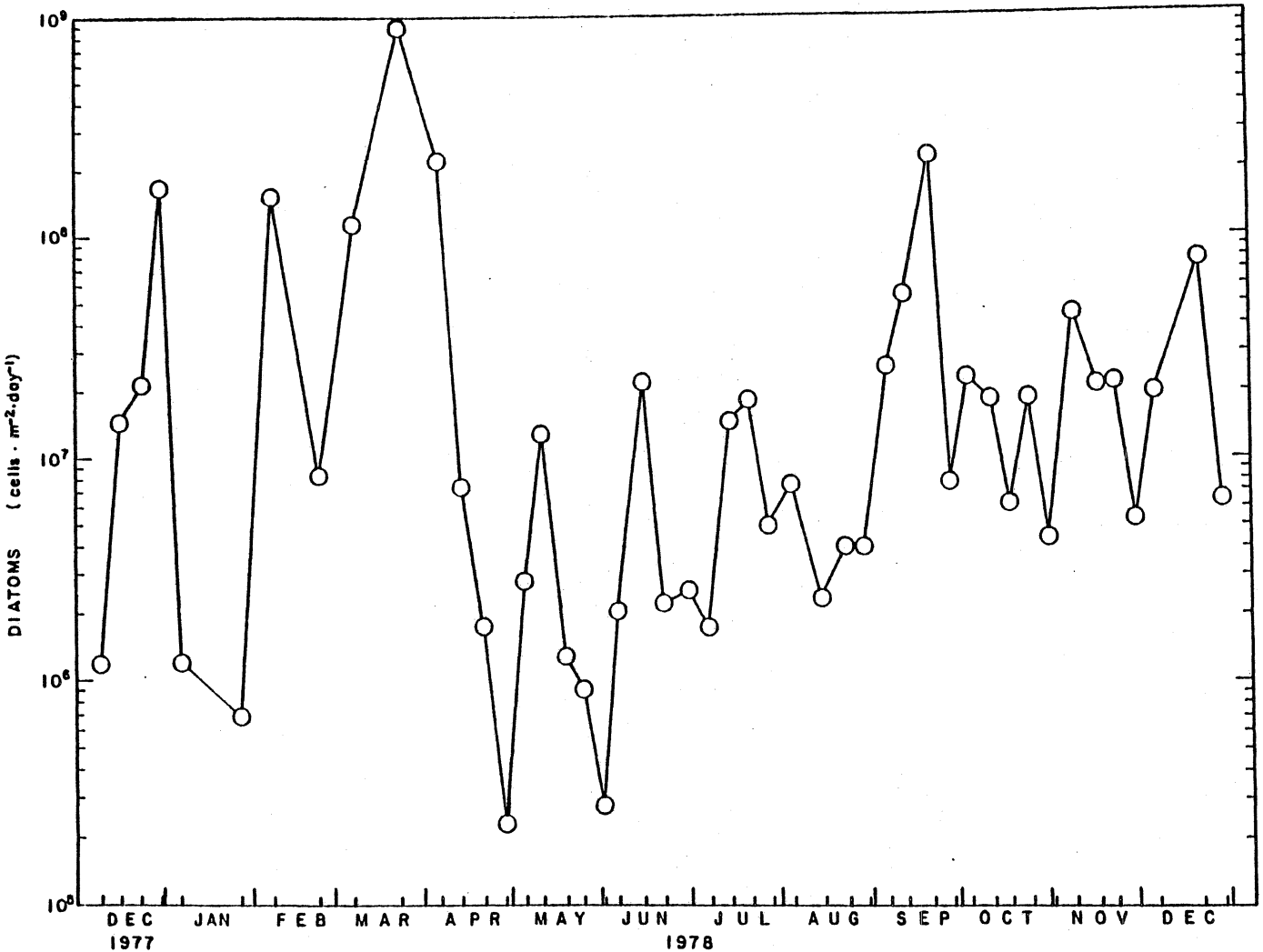


Figure 16. Planktonic diatoms collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

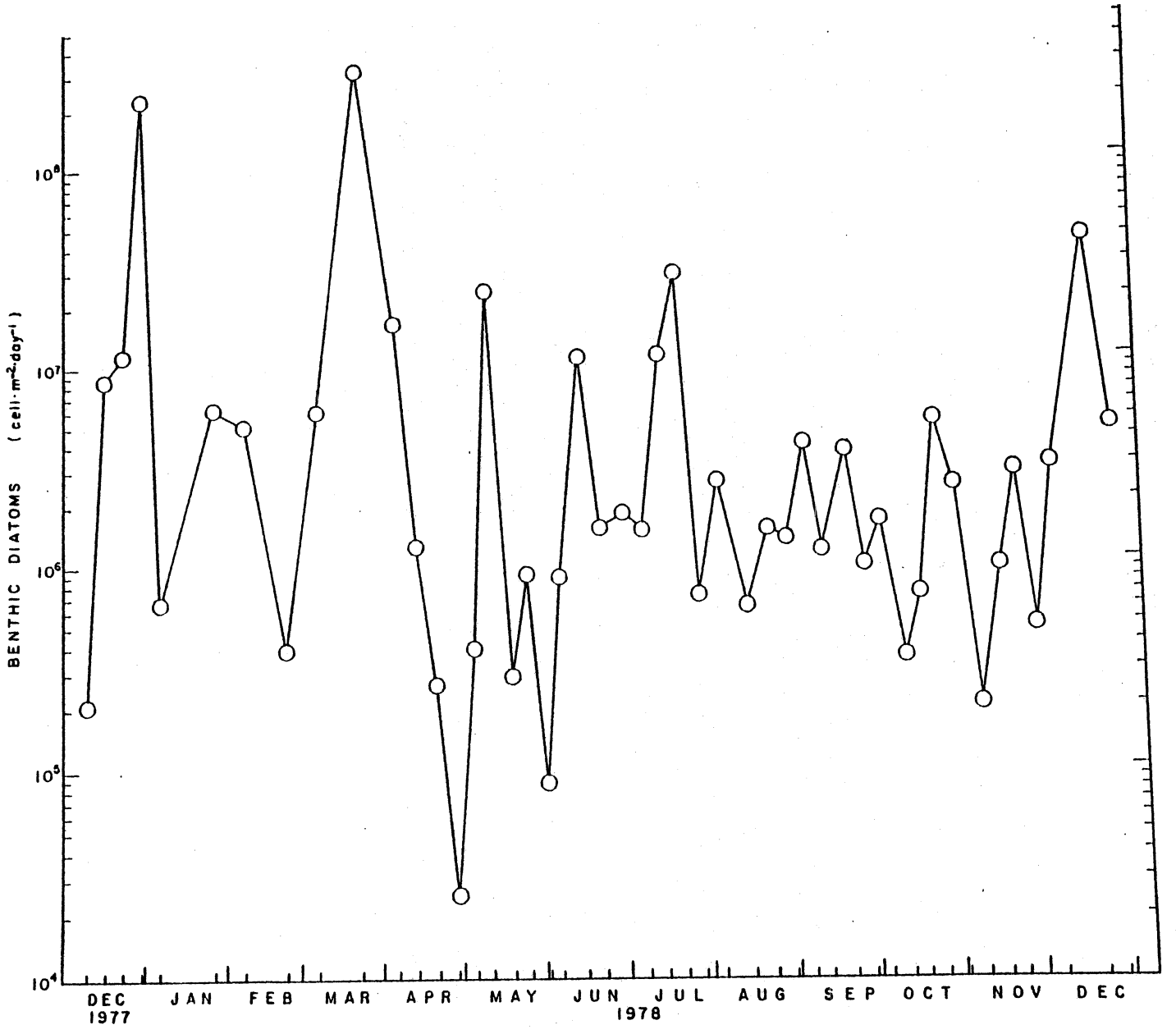


Figure 17. Benthic diatoms collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

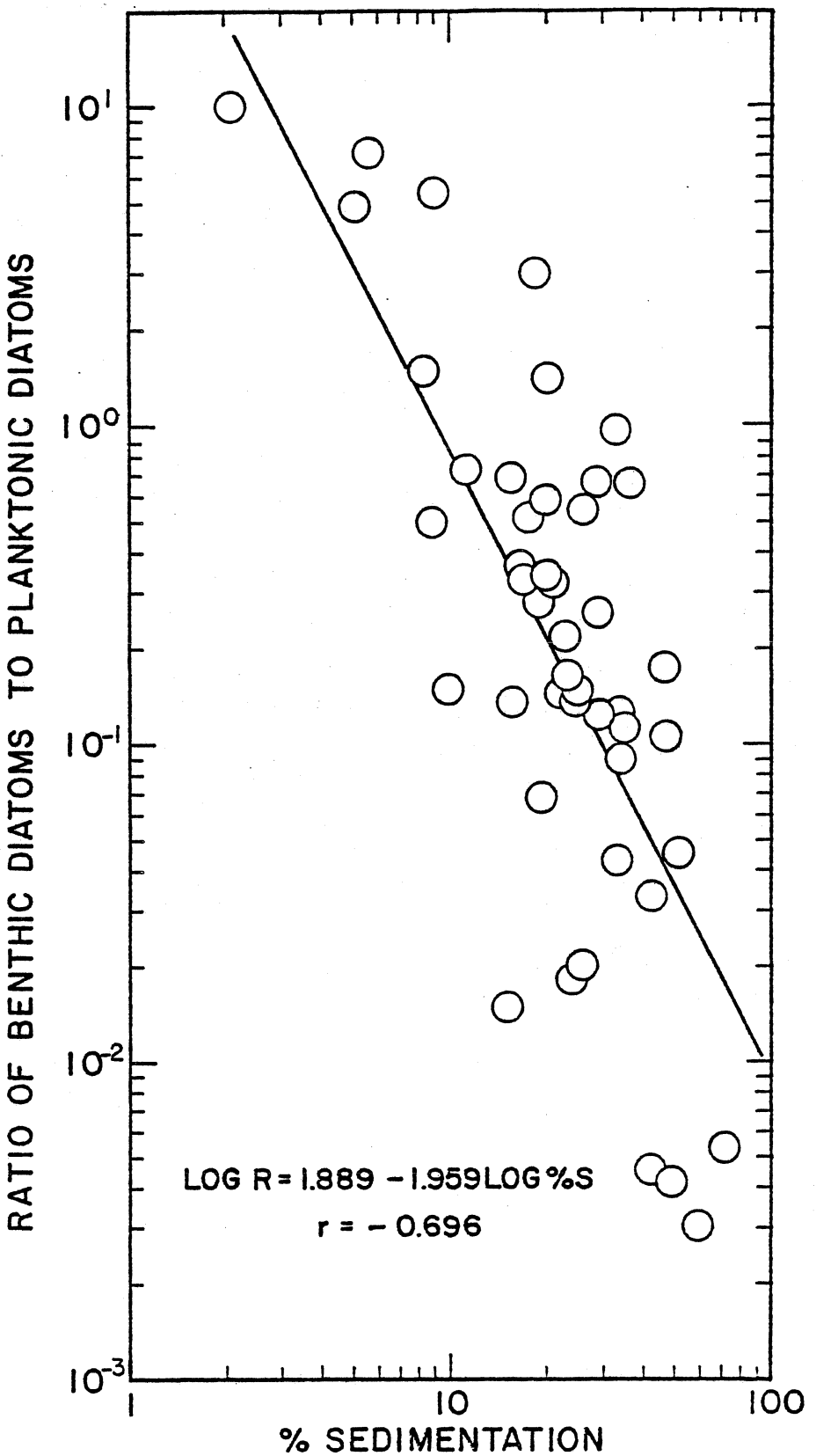


Figure 18. Relationship between % sedimentation and ratio of benthic diatoms to planktonic diatoms collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

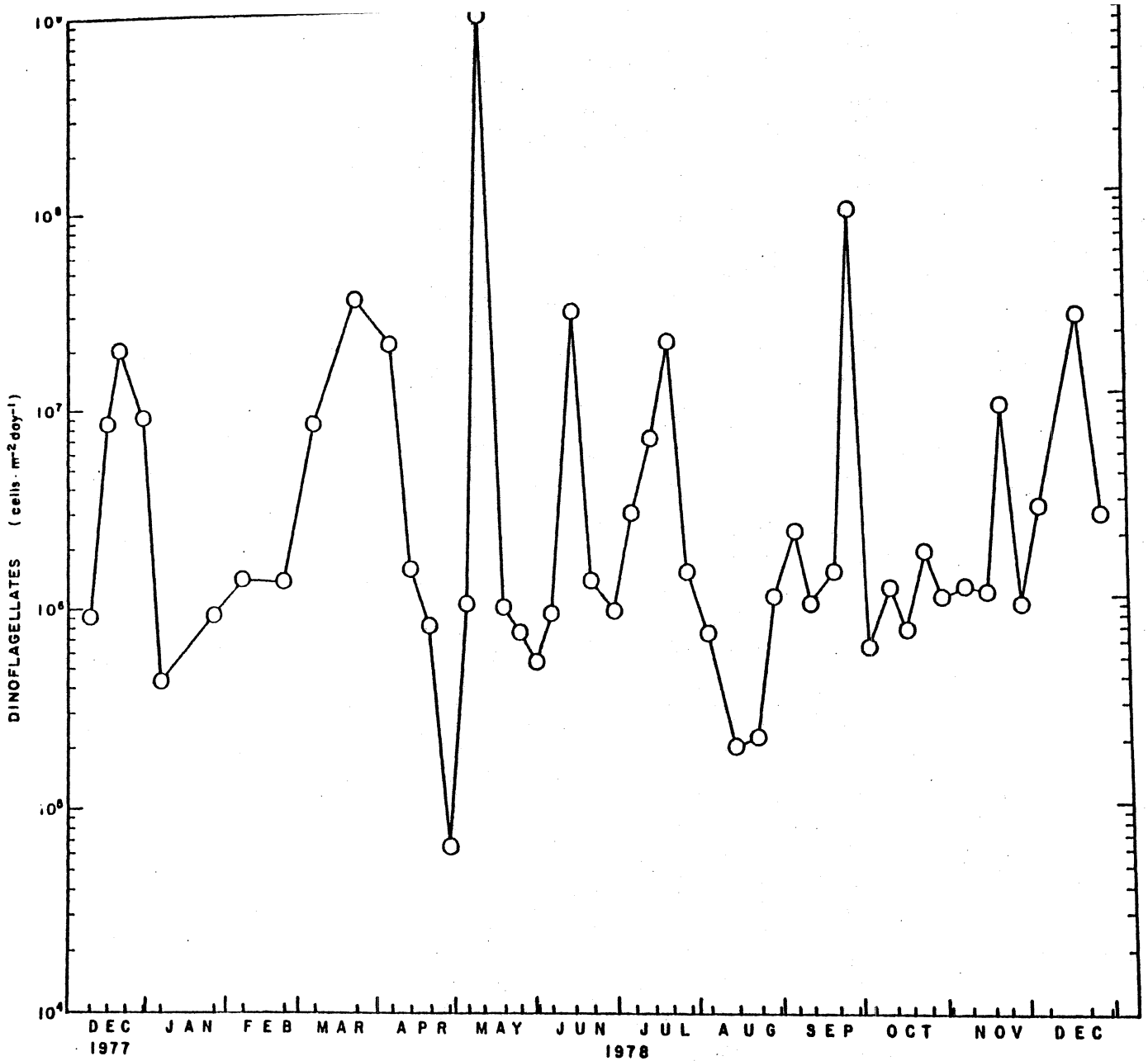


Figure 19. Dinoflagellates collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

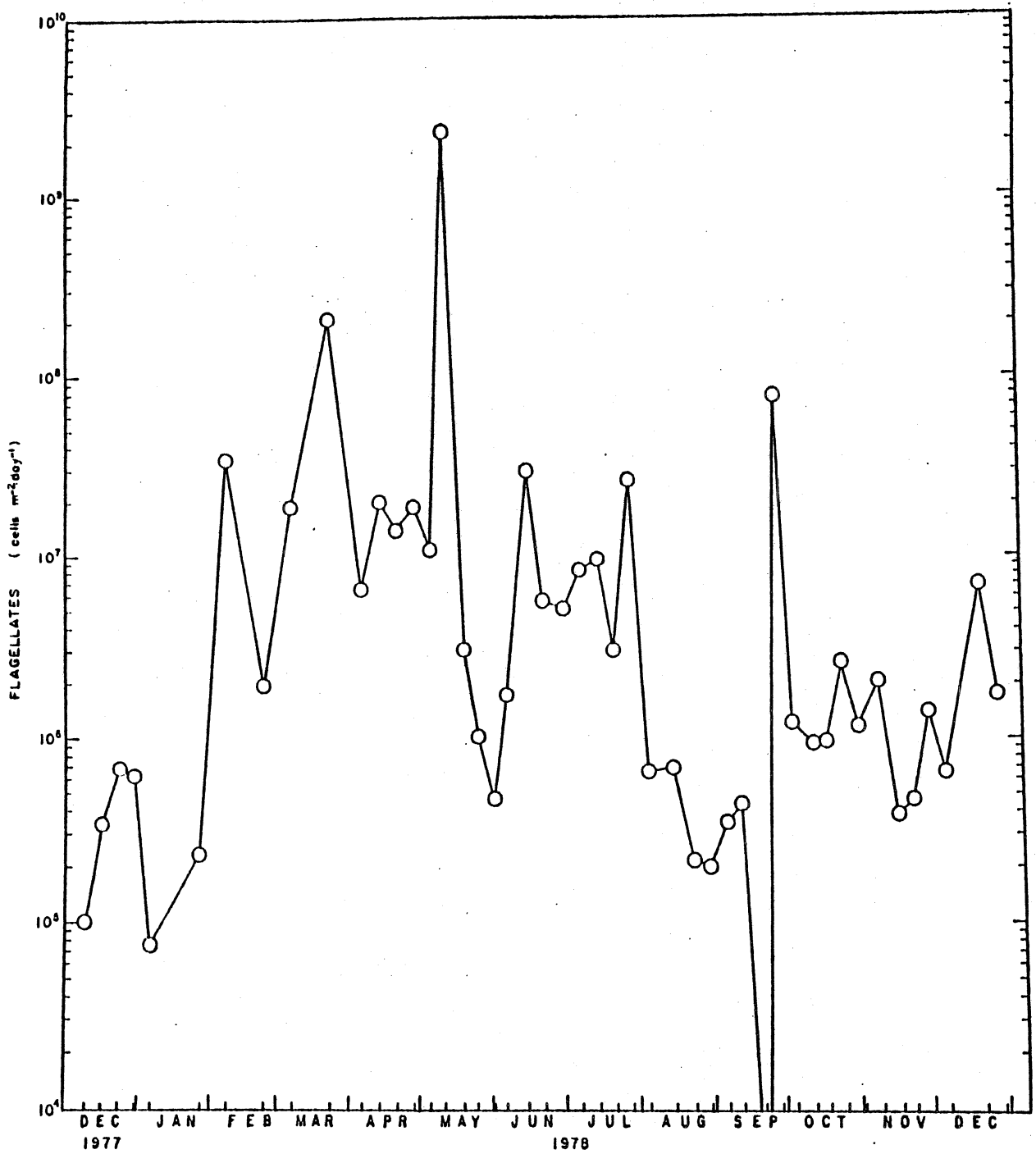


Figure 20. Flagellates collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

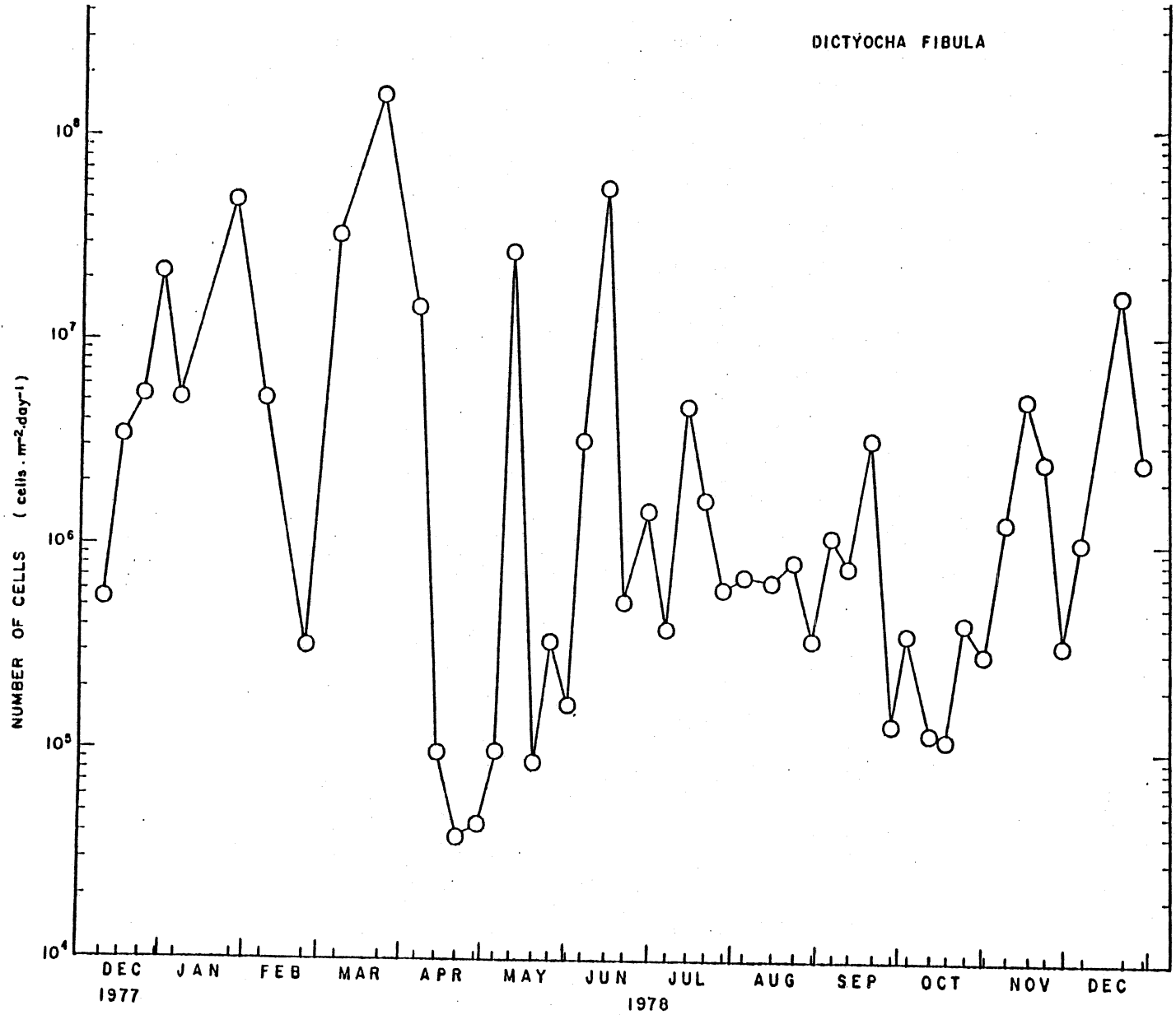


Figure 21. Silicoflagellates collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

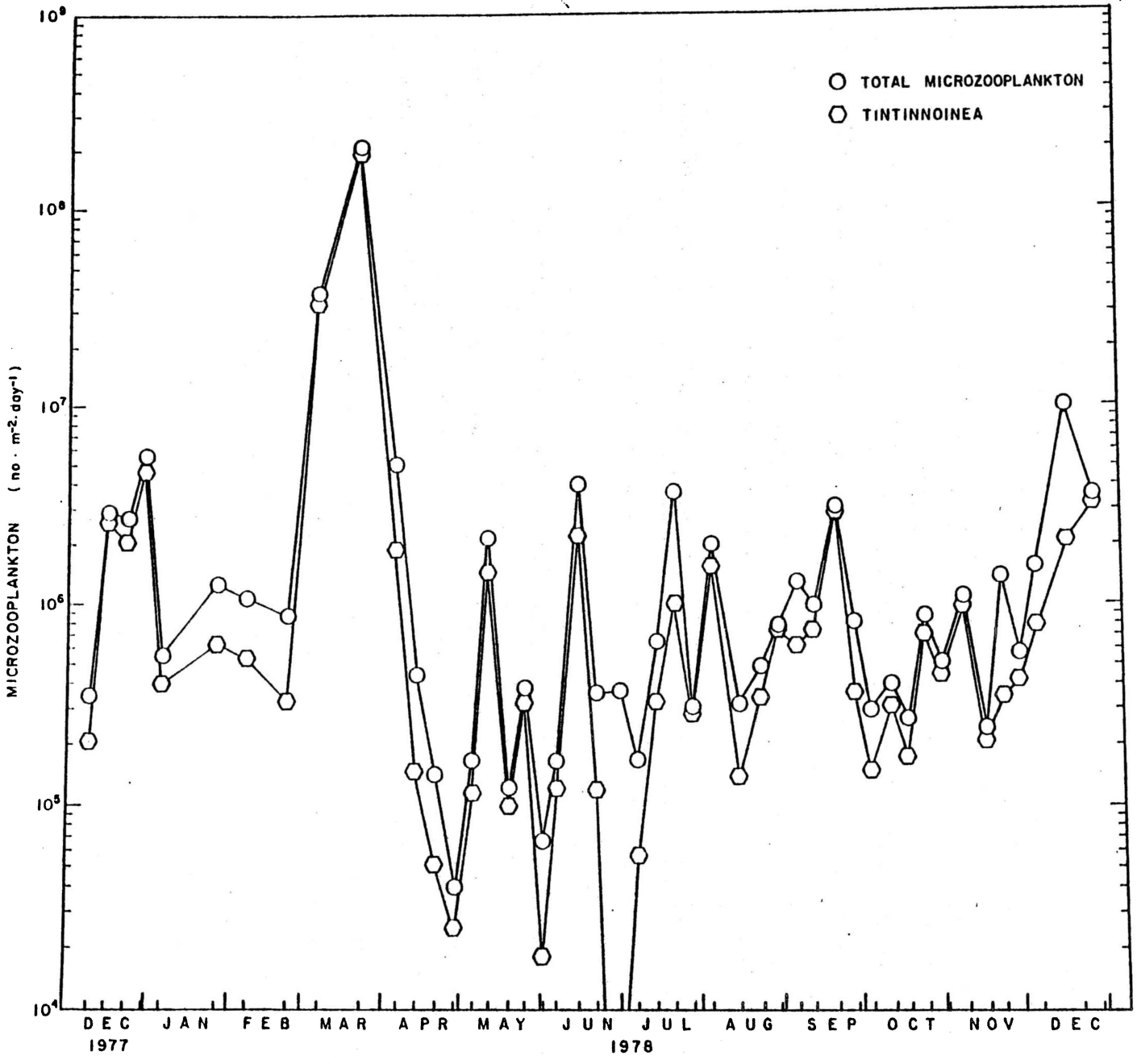


Figure 22. The total microzooplankton and tintinnoinea collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

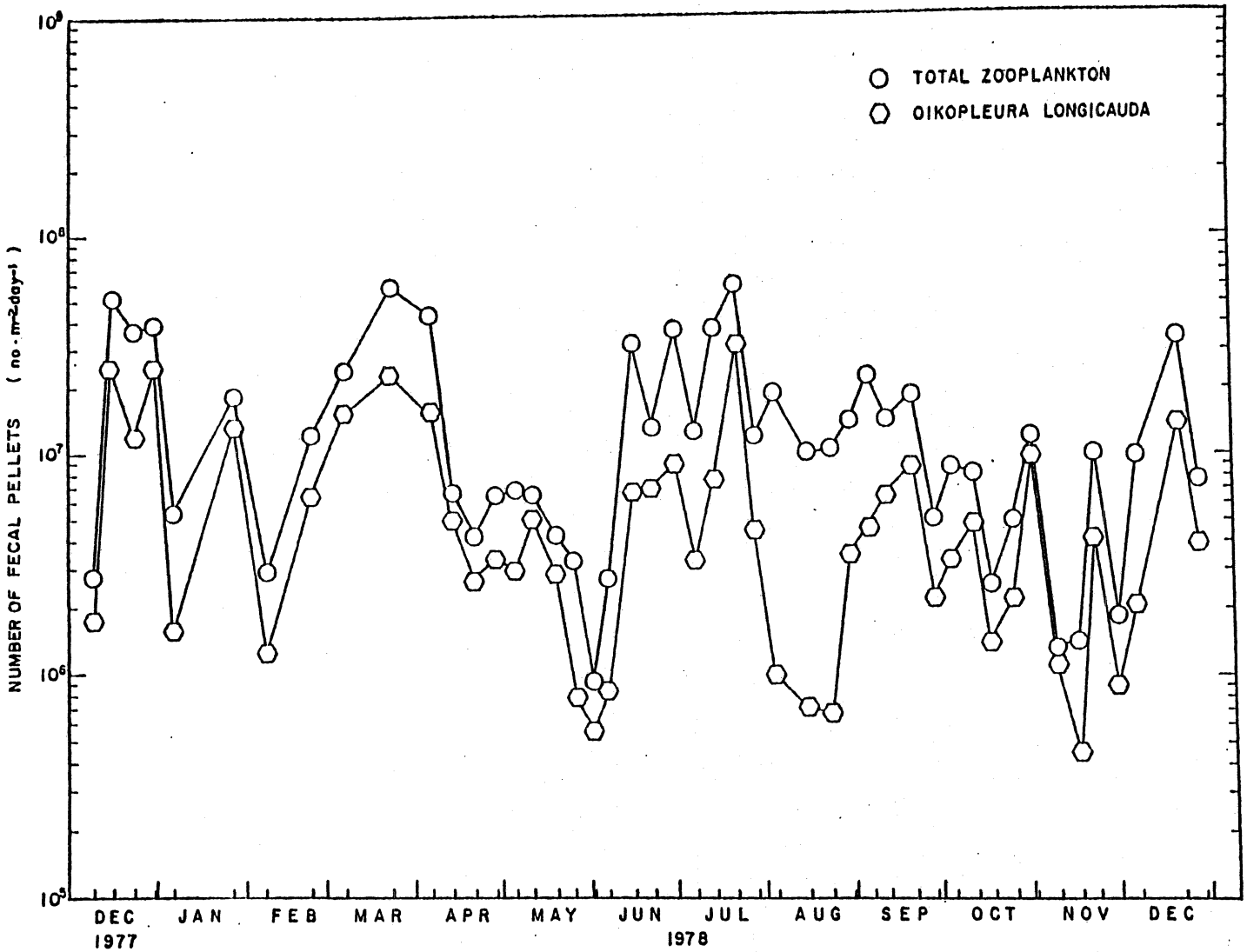


Figure 23. The numbers of fecal pellets from total zooplankton and *Oikopleura longicauda* collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

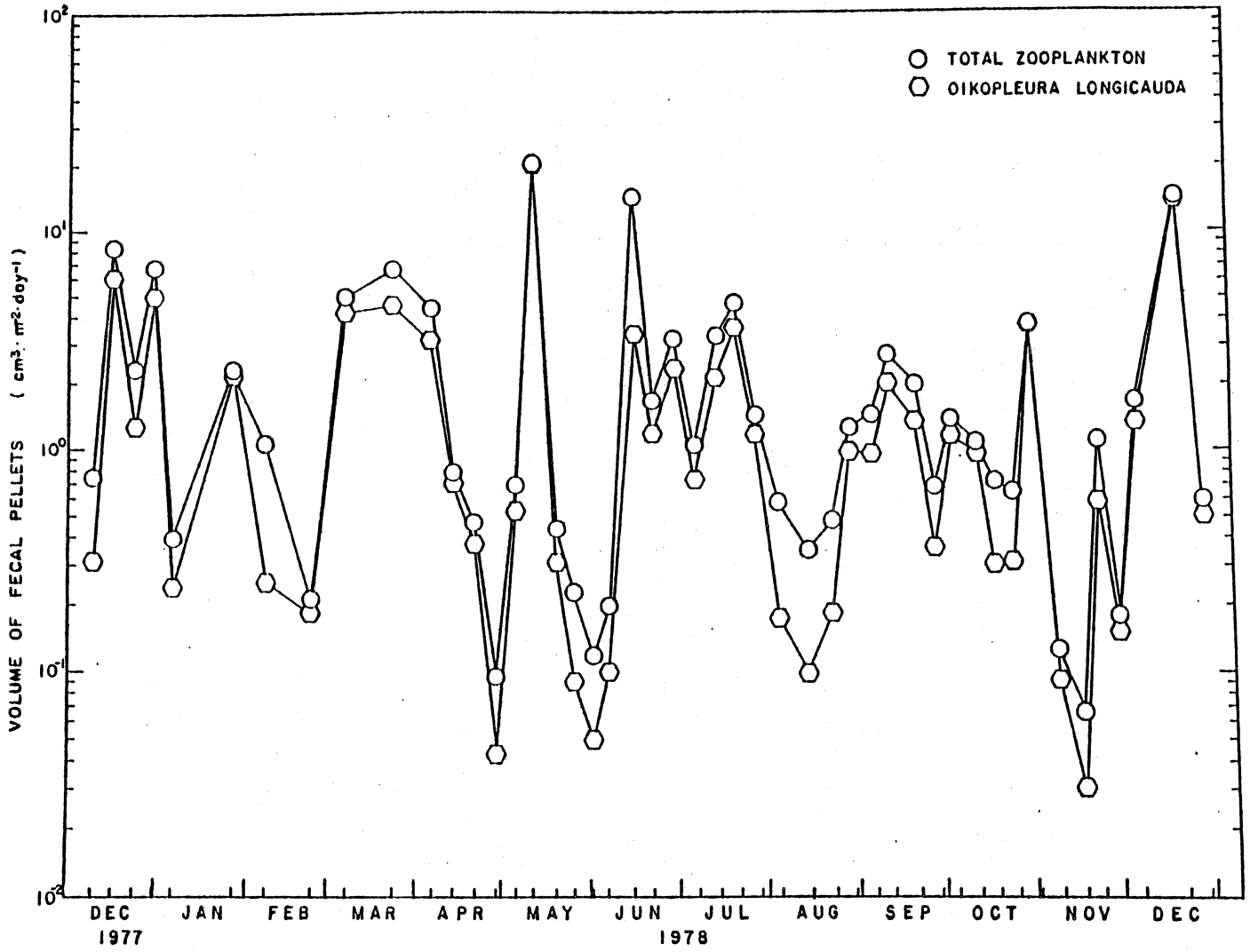


Figure 24. The volume of fecal pellets from total zooplankton and *Oikopleura longicauda* collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

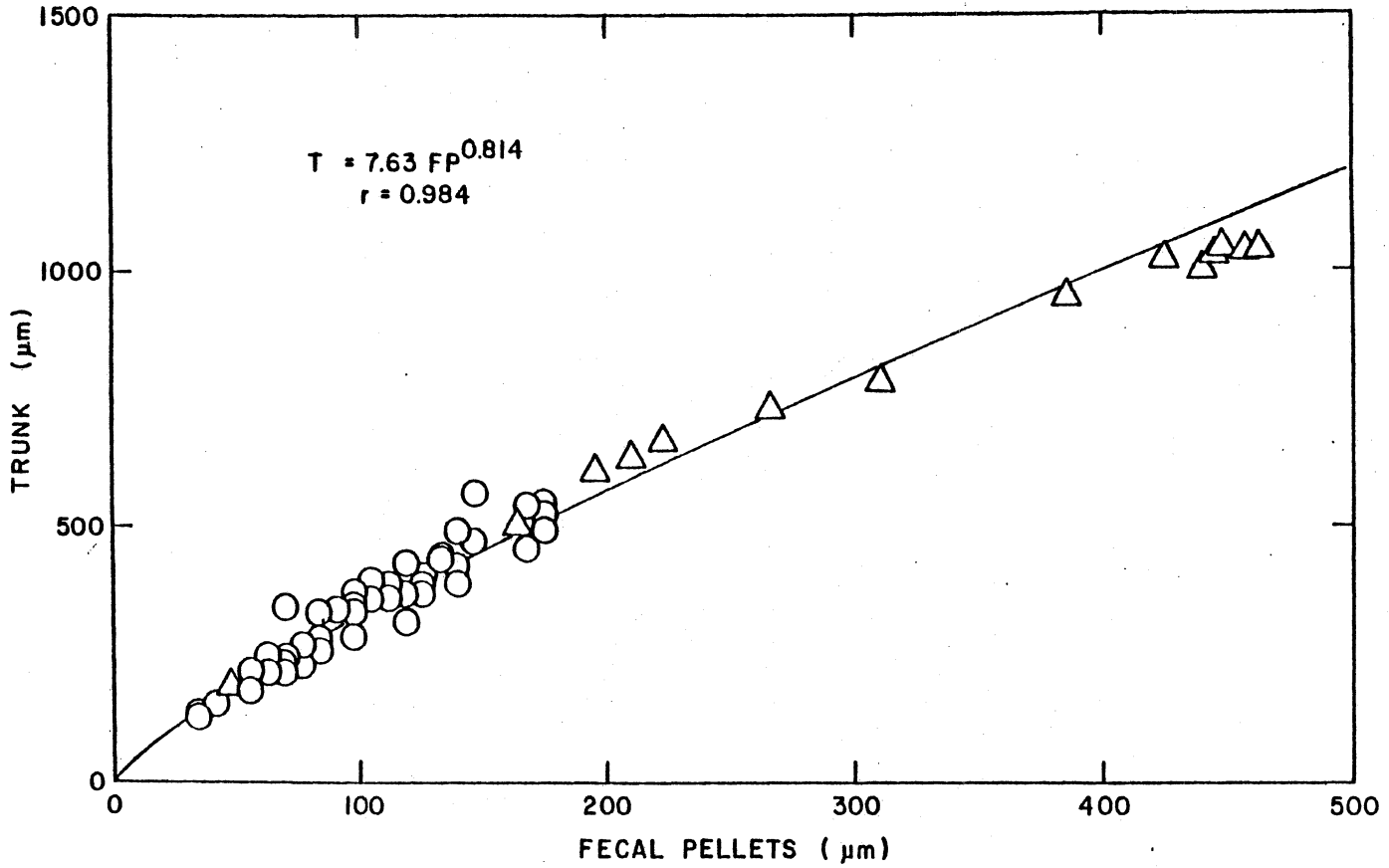


Figure 25. Relationship between a length of fecal pellets and a length of trunks of *Oikopleura longicauda*. O was measured by W. Kimmerer. Δ was obtained in the present study.

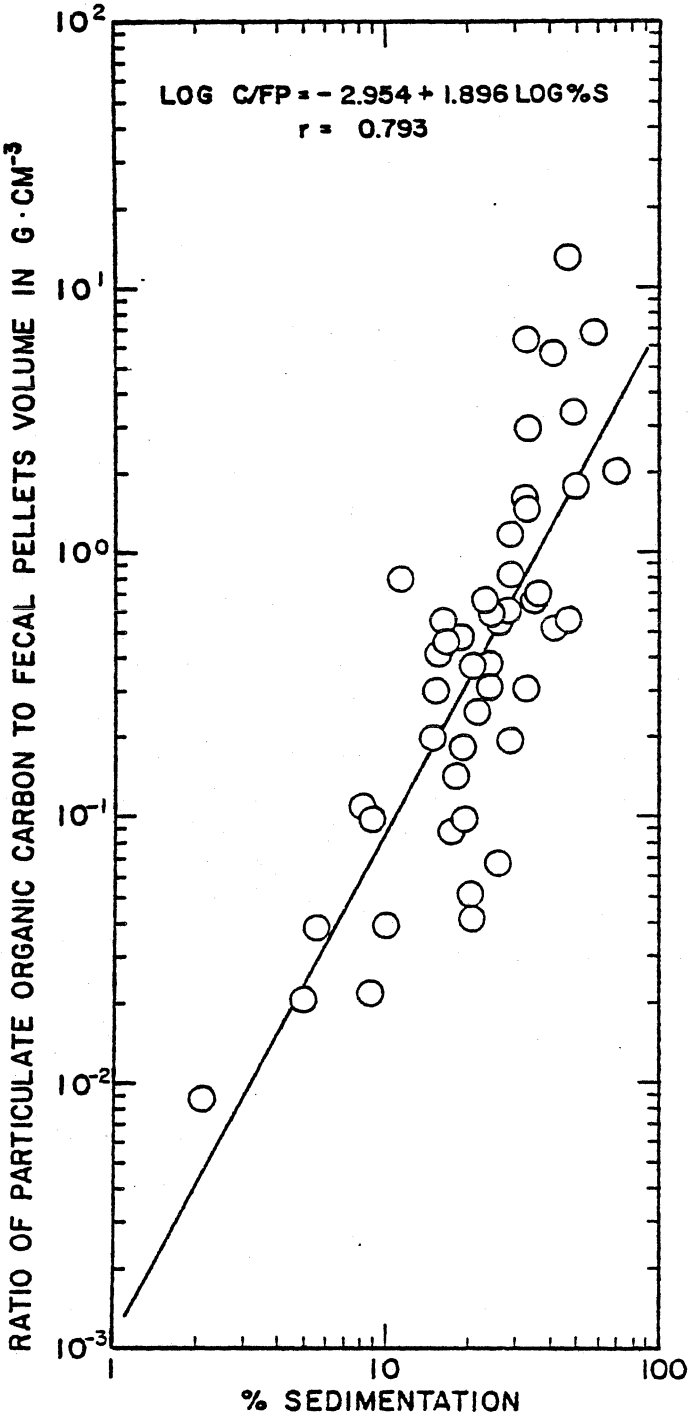


Figure 26. Relationship between % sedimentation and a ratio of particulate organic carbon sedimented to volume of fecal pellets by total zooplankton collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

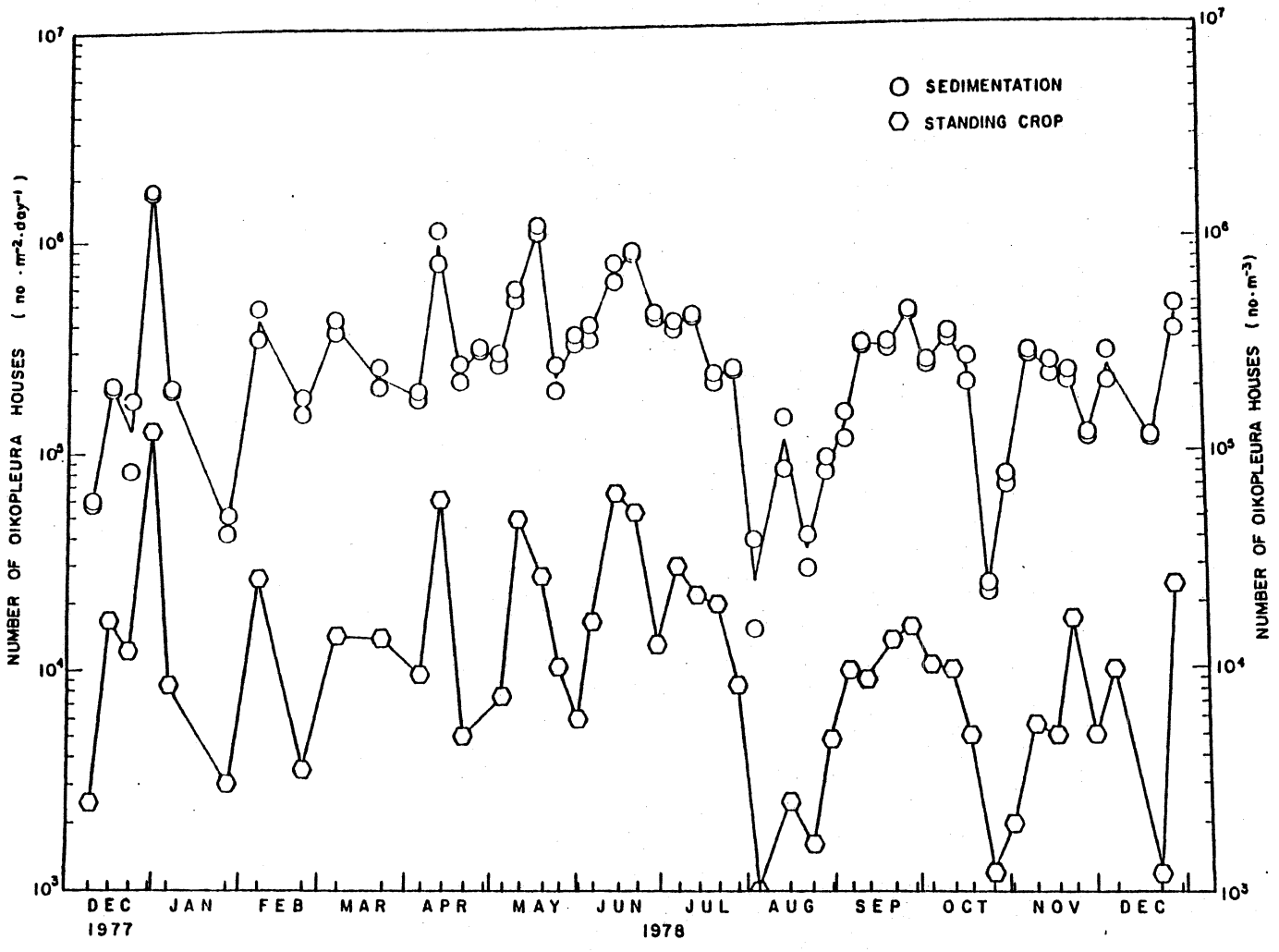


Figure 27. Discarded houses collected in sediment traps and standing crop of discarded houses by *Oikopleura longicauda* in the surface water in Kaneohe Bay during the period from December 1977 to December 1978.

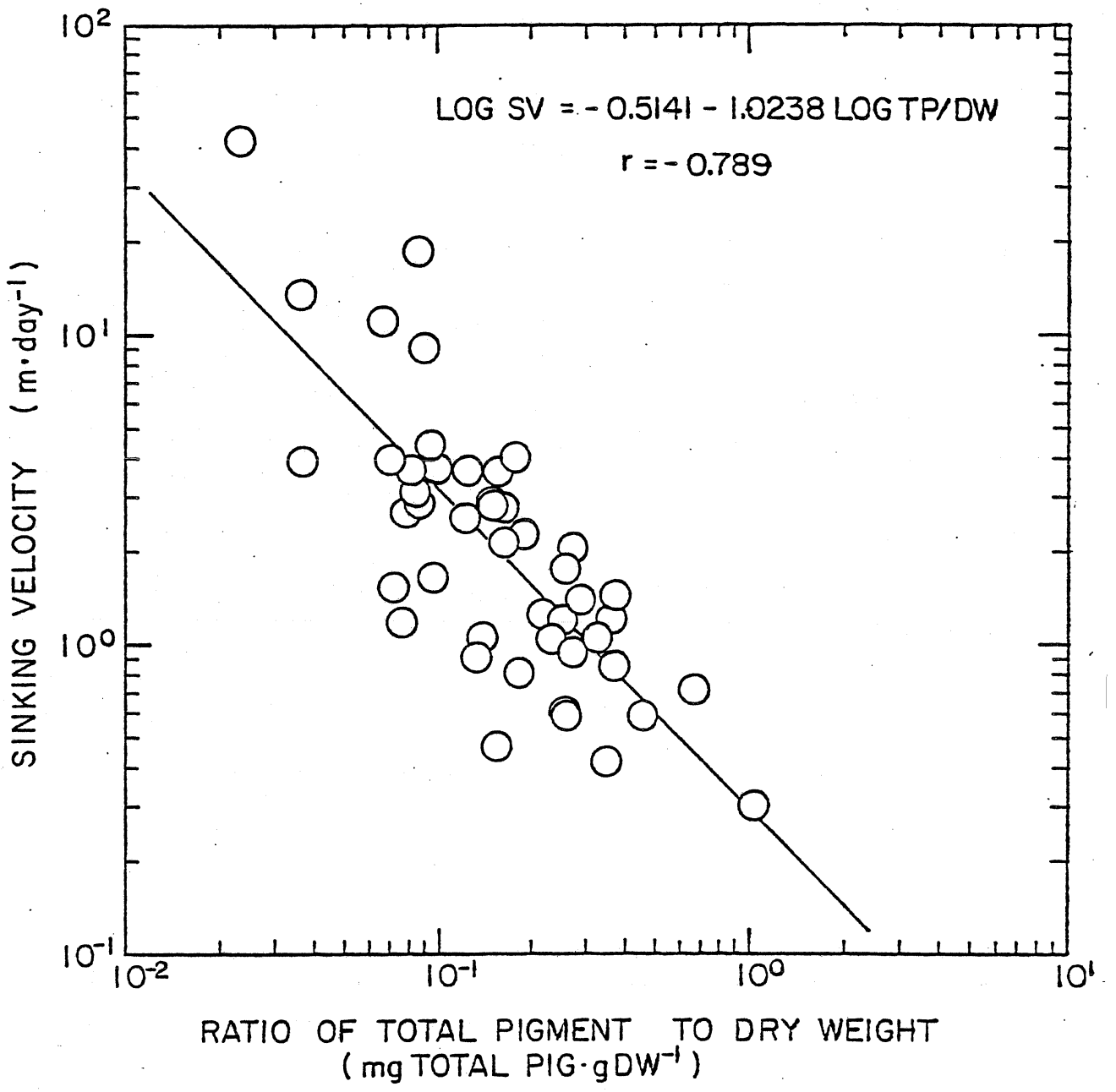


Figure 28. Relationship between the total pigment contribution to dry weight of deposited material in sediment traps and the sinking velocity of discarded houses by *Oikopleura longicauda*. The sinking velocity was calculated from the standing stock of discarded houses in the water column and the number of discarded houses collected in sediment traps in Kaneohe Bay during the period from December 1977 to December 1978.

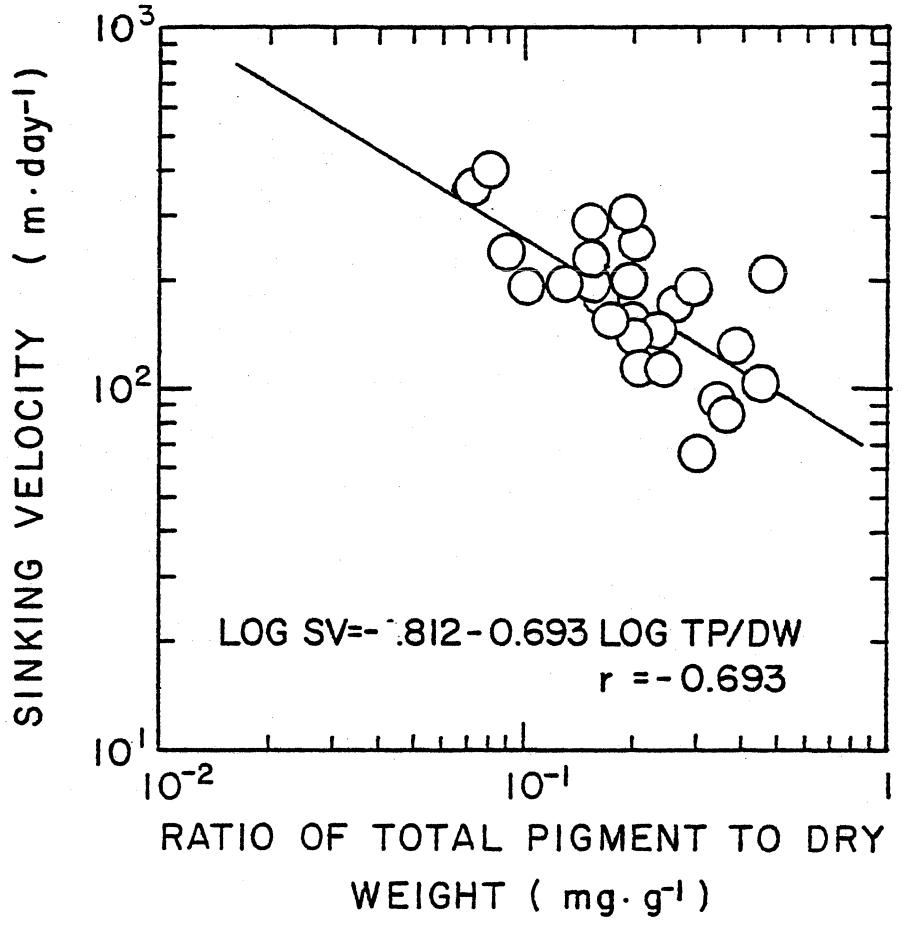


Figure 29. Relationship between the total pigment contribution to dry weight of deposited material collected in sediment traps and the sinking velocity of discarded houses by *Oikopleura longicauda*. The sinking velocity was measured in the laboratory with samples collected during the period from June and December 1978.

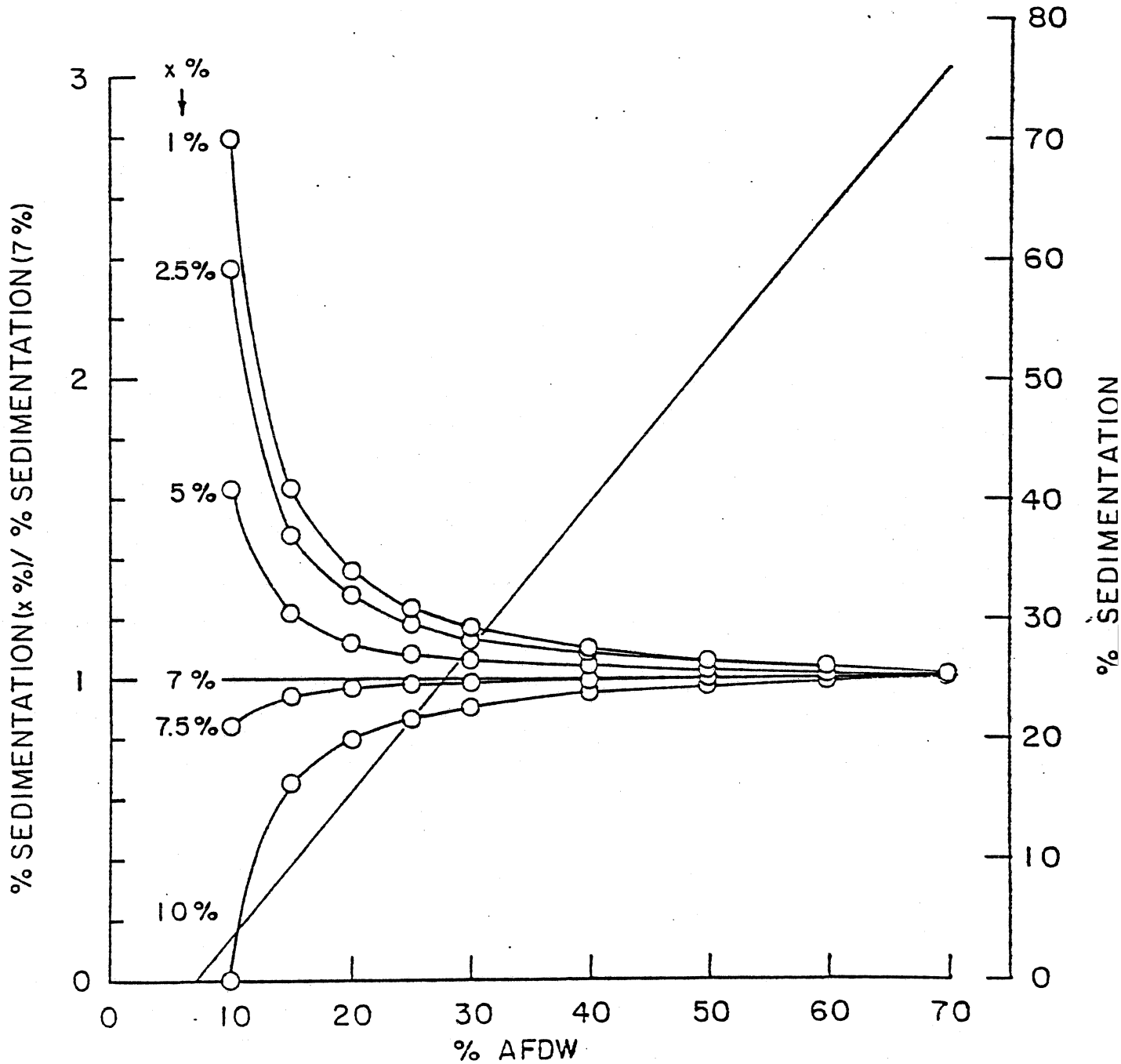
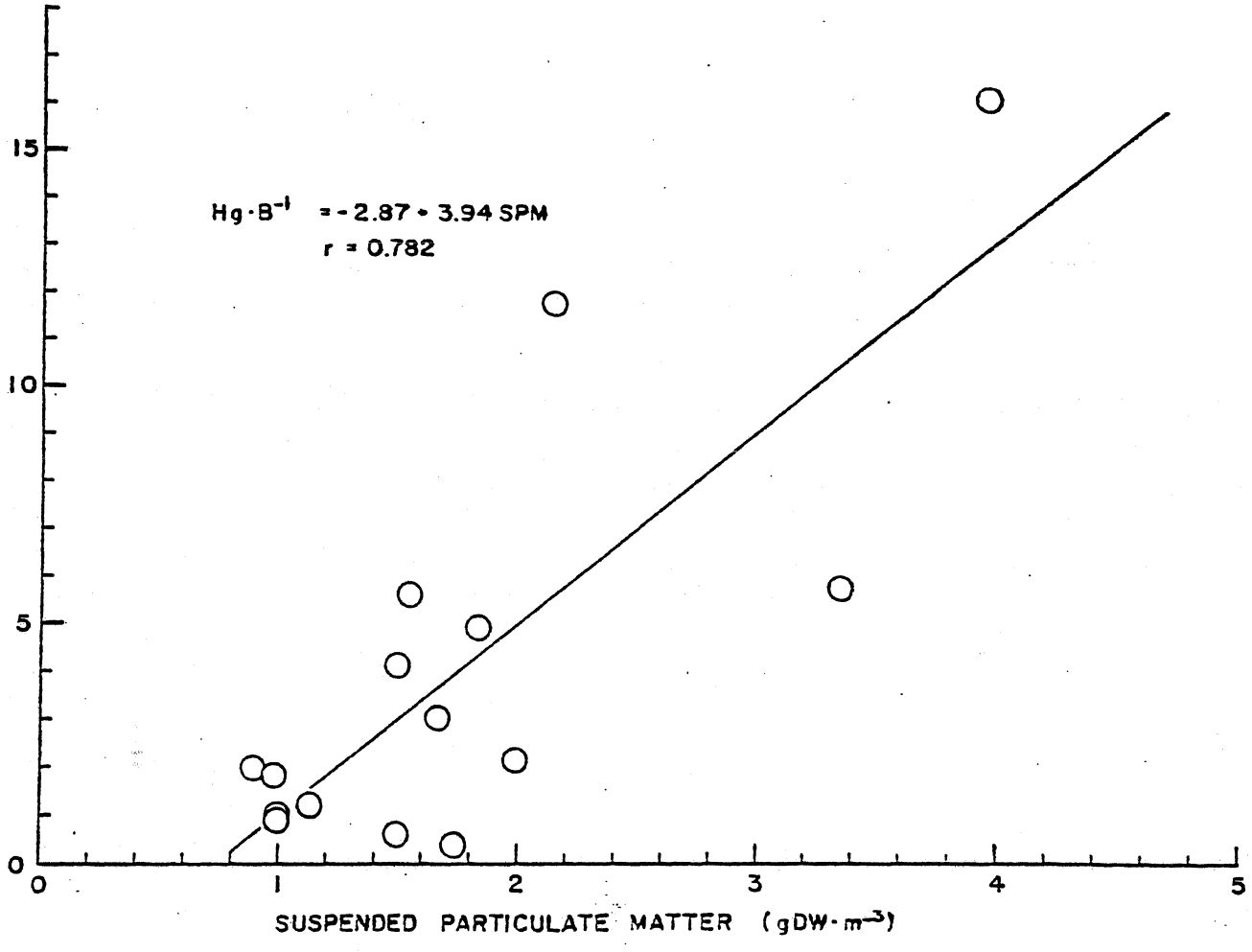


Figure 30. The ratio of % sedimentation using a variable (1-10%) to % AFDW to % sedimentation using 7% AFDW. Oblique line shows the relationship between % AFDW of deposited material in sediment traps and % sedimentation.



gure 31. Relationship between the concentration of suspended particulate matter ($gDW \cdot m^{-3}$) in surface water and the specific production rate of houses per *Oikopleura longicauda* in Kaneohe Bay during the period from December 1977 to December 1978.

APPENDIX

Date 09-XII-1977

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	227
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	42.4
Organic Carbon/Nitrogen		5.35
Total Chlorophyll	($mg \cdot m^{-3}$)	2.65
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	3.30±0.823
% AFDW		44.0±4.10
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	1.53±0.298
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.27
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.376
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.891
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.127
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0300
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0972
Total Carbon/Nitrogen		9.96
Ashed Carbon/Nitrogen		12.5
Organic Carbon/Nitrogen		9.18
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	0.575
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0299
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.545
Live/Total Chlorophyll		0.948

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 30-XII-1977

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	93.2
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	-
Organic Carbon/Nitrogen		-
Total Chlorophyll	($mg \cdot m^{-3}$)	0.230
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	21.4±0.991
% AFDW		23.4±7.71
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	4.96±1.87
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.13±0.0742
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.399±0.0120
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.73±0.0636
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.219±0.0512
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0195
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.200
Total Carbon/Nitrogen		9.77±1.02
Ashed Carbon/Nitrogen		20.5
Organic Carbon/Nitrogen		8.68
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.77±0.474
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.303±0.142
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.47±0.325
Live/Total Chlorophyll		0.838±0.0389

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 23-XII-1977

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	227
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	35.0
Organic Carbon/Nitrogen		6.48
Total Chlorophyll	($mg \cdot m^{-3}$)	2.47
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	42.5±4.33
% AFDW		14.1±0.566
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.98±0.0906
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.88±0.129
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.340±0.00848
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.54±0.120
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.372±0.0561
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0913
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.282
Total Carbon/Nitrogen		7.86±1.53
Ashed Carbon/Nitrogen		3.72
Organic Carbon/Nitrogen		9.04
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.57±0.233
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.317±0.0326
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.26±0.198
Live/Total Chlorophyll		0.799±0.00778

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 16-XII-1977

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	136
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	49.1
Organic Carbon/Nitrogen		2.77
Total Chlorophyll	($mg \cdot m^{-3}$)	1.80
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	22.7±1.59
% AFDW		23.4±2.40
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.39±0.101
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.07
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.418
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.65
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.224
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0596
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.164
Total Carbon/Nitrogen		9.23
Ashed Carbon/Nitrogen		7.01
Organic Carbon/Nitrogen		10.0
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.77
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.440
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.33
Live/Total Chlorophyll		0.749

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 06-I-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	139
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	21.3
Organic Carbon/Nitrogen		6.52
Total Chlorophyll	($mg \cdot m^{-3}$)	1.43
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	1.70±0.0252
% AFDW		63.2 ±0.848
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	1.07±0.00549
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.17
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.0573
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.11
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.125
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.00413
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.121
Total Carbon/Nitrogen		9.37
Ashed Carbon/Nitrogen		13.9
Organic Carbon/Nitrogen		9.21
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	0.442
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0226
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.419
Live/Total Chlorophyll		0.950

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 27-I-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	195
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	39.9
Organic Carbon/Nitrogen		5.89
Total Chlorophyll	($mg \cdot m^{-3}$)	1.09
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	24.5±0.0707
% AFDW		21.6±1.41
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.07
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.64
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.834
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.81
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.213
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0327
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.180
Total Carbon/Nitrogen		12.4
Ashed Carbon/Nitrogen		25.5
Organic Carbon/Nitrogen		10.0
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	0.912
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0666
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.845
Live/Total Chlorophyll		0.927

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 07-II-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	238
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	46.8
Organic Carbon/Nitrogen		4.19
Total Chlorophyll	($mg \cdot m^{-3}$)	0.98
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	6.15±0.381
% AFDW		40.8 ±4.38
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.54±0.0840
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.69
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.402
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.28
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.177
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0498
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.127
Total Carbon/Nitrogen		9.52
Ashed Carbon/Nitrogen		8.09
Organic Carbon/Nitrogen		10.0
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	0.481
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.260
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.455
Live/Total Chlorophyll		0.947

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 23-II-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	132
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	15.5
Organic Carbon/Nitrogen		8.52
Total Chlorophyll	($mg \cdot m^{-3}$)	0.450
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	4.24±0.622
% AFDW		47.6
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.01±0.293
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.906
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.168
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.738
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.256
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.138
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.118
Total Carbon/Nitrogen		3.54
Ashed Carbon/Nitrogen		1.22
Organic Carbon/Nitrogen		6.22
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.32
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0604
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.26
Live/Total Chlorophyll		0.955

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 07-III-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	221
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	37.2
Organic Carbon/Nitrogen		5.94
Total Chlorophyll	($mg \cdot m^{-3}$)	1.28
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	44.0±0.0707
% AFDW		20.9
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	9.21±0.0148
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.50
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.935
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.56
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.403
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.142
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.260
Total Carbon/Nitrogen		8.69
Ashed Carbon/Nitrogen		6.56
Organic Carbon/Nitrogen		9.83
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	7.33
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	5.13
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.20
Live/Total Chlorophyll		0.300

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 23-III-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	291
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	49.1
Organic Carbon/Nitrogen		5.93
Total Chlorophyll	($mg \cdot m^{-3}$)	1.42
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	48.1±5.52
% AFDW		22.6±0.0375
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	10.8±0.630
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.49±0.269
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.142±0.0101
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.35±0.283
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.801±0.0564
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.283±0.0426
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.519±0.0138
Total Carbon/Nitrogen		4.37±0.642
Ashed Carbon/Nitrogen		0.504±0.0399
Organic Carbon/Nitrogen		6.46±0.708
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.10±0.396
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.20±0.219
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.90±0.608
Live/Total Chlorophyll		0.457±0.105

Bottom Sediments		Mean ± S.D.
% AFDW		13.2
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 06-IV-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	-
% AFDW		-
AFDW	($mg \cdot m^{-3}$)	-
Particulate Organic Carbon	($mg \cdot m^{-3}$)	303
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	71.7
Organic Carbon/Nitrogen		4.22
Total Chlorophyll	($mg \cdot m^{-3}$)	0.530
Phaeopigments	($mg \cdot m^{-3}$)	-
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	-
Live/Total Chlorophyll		-

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	104 ±2.99
% AFDW		11.3±0.566
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	11.8±0.230
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	11.9±0.933
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	8.83±0.194
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.06±0.771
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	1.38±0.0301
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.900±0.00390
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.425±0.0340
Total Carbon/Nitrogen		8.97±0.528
Ashed Carbon/Nitrogen		9.81±0.257
Organic Carbon/Nitrogen		7.16±1.25
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	9.53±0.629
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	6.19±0.240
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	3.34±0.116
Live/Total Chlorophyll		0.350±0.0177

Bottom Sediments		Mean ± S.D.
% AFDW		15.7
% Total Carbon		5.08
% Organic Carbon		1.01
% Total Nitrogen		0.250
% Organic Nitrogen		0.0459
Organic Carbon/Nitrogen		22.0
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00995±0.000502
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00995±0.000502

Date 13-IV-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	648 ±167
% AFDW		74.1
AFDW	($mg \cdot m^{-3}$)	480
Particulate Organic Carbon	($mg \cdot m^{-3}$)	442
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	109
Organic Carbon/Nitrogen		4.05
Total Chlorophyll	($mg \cdot m^{-3}$)	0.627±0.0106
Phaeopigments	($mg \cdot m^{-3}$)	0 ±0
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.627±0.0106
Live/Total Chlorophyll		1.00 ±0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	30.3±2.08
% AFDW		25.4±0.283
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	7.70±0.553
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	8.53±1.05
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.28±0.140
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.625±0.0905
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	1.06±0.0292
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.687±0.106
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.372±0.0766
Total Carbon/Nitrogen		8.04±0.772
Ashed Carbon/Nitrogen		2.38±0.114
Organic Carbon/Nitrogen		6.00±0.0580
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.73±0.212
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.17±0.170
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.560±0.0424
Live/Total Chlorophyll		0.205±0.000353

Bottom Sediments		Mean ± S.D.
% AFDW		14.7
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0120±0.00141
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0120±0.00141

Date 21-IV-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	6340 ±1960
% AFDW		23.3
AFDW	($mg \cdot m^{-3}$)	1480
Particulate Organic Carbon	($mg \cdot m^{-3}$)	172
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	24.0
Organic Carbon/Nitrogen		7.17
Total Chlorophyll	($mg \cdot m^{-3}$)	5.94±0.551
Phaeopigments	($mg \cdot m^{-3}$)	0.907±0.0834
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	5.03±0.460
Live/Total Chlorophyll		0.848±0.00141

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	9.81±1.61
% AFDW		26.5±2.97
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.65±0.747
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.55±0.257
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.07±0.0533
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.46±0.172
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.294±0.0318
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.102±0.0367
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.192±0.0686
Total Carbon/Nitrogen		8.65±0.231
Ashed Carbon/Nitrogen		10.3±4.65
Organic Carbon/Nitrogen		7.99±1.91
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.67±0.276
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.11±0.212
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.887±0.0679
Live/Total Chlorophyll		0.241±0.000354

Bottom Sediments		Mean ± S.D.
% AFDW		7.33
% Total Carbon		7.00
% Organic Carbon		1.35
% Total Nitrogen		0.367
% Organic Nitrogen		0.183
Organic Carbon/Nitrogen		7.38
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0109±0.000353
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0109±0.000353

Date 28-IV-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	845±72.8
% AFDW		27.9
AFDW	($mg \cdot m^{-3}$)	236
Particulate Organic Carbon	($mg \cdot m^{-3}$)	181
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	52.5
Organic Carbon/Nitrogen		3.45
Total Chlorophyll	($mg \cdot m^{-3}$)	0.648±0.00495
Phaeopigments	($mg \cdot m^{-3}$)	0.0578±0.000424
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.591±0.00452
Live/Total Chlorophyll		0.910±0.00168

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	21.4
% AFDW		43.4±4.28
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	9.39
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	4.90
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.24
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.66
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	1.14
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.841
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.302
Total Carbon/Nitrogen		4.29
Ashed Carbon/Nitrogen		2.66
Organic Carbon/Nitrogen		8.83
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	6.23
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.15
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	3.08
Live/Total Chlorophyll		0.494

Bottom Sediments		Mean + S.D.
% AFDW		15.8
% Total Carbon		7.97
% Organic Carbon		2.99
% Total Nitrogen		0.331
% Organic Nitrogen		0.234
Organic Carbon/Nitrogen		12.8
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0122±0.000283
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0122±0.000283

Date 05-V-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	985±218
% AFDW		35.2
AFDW	($mg \cdot m^{-3}$)	347
Particulate Organic Carbon	($mg \cdot m^{-3}$)	146
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	19.1
Organic Carbon/Nitrogen		7.64
Total Chlorophyll	($mg \cdot m^{-3}$)	0.734±0.0120
Phaeopigments	($mg \cdot m^{-3}$)	0.0752±0.00134
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.659±0.0106
Live/Total Chlorophyll		0.898±0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	12.2±1.71
% AFDW		19.3±5.37
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.23±0.484
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.69±0.706
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.374±0.00560
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.31±0.0814
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.276±0.0233
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.114±0.00534
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.163±0.0286
Total Carbon/Nitrogen		6.15±0.773
Ashed Carbon/Nitrogen		3.30±0.0358
Organic Carbon/Nitrogen		8.26±1.93
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.14±0
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	1.75±0
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.39±0
Live/Total Chlorophyll		0.442±0

Bottom Sediments		Mean ± S.D.
% AFDW		15.4
% Total Carbon		7.00
% Organic Carbon		2.07
% Total Nitrogen		0.197
% Organic Nitrogen		0.0569
Organic Carbon/Nitrogen		36.4
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0197±0.00283
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0197±0.00283

Date 11-V-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3360±35.3
% AFDW		15.1
AFDW	($mg \cdot m^{-3}$)	508
Particulate Organic Carbon	($mg \cdot m^{-3}$)	447
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	54.0
Organic Carbon/Nitrogen		8.28
Total Chlorophyll	($mg \cdot m^{-3}$)	2.30±0.120
Phaeopigments	($mg \cdot m^{-3}$)	0.110±0.00566
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	2.20±0.113
Live/Total Chlorophyll		0.952±0

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	247±25.6
% AFDW		8.65±1.14
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	21.4±4.27
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	24.9±4.42
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	15.9±1.43
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	8.95±2.99
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	1.06±0.0316
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.283±0.0160
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.745±0.0319
Total Carbon/Nitrogen		23.4±3.47
Ashed Carbon/Nitrogen		56.2±1.86
Organic Carbon/Nitrogen		12.1±4.54
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	5.77±0.368
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	4.11±0.0849
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.65±0.290
Live/Total Chlorophyll		0.286±0.0311

Bottom Sediments		Mean + S.D.
% AFDW		9.46
% Total Carbon		9.21
% Organic Carbon		1.98
% Total Nitrogen		0.244
% Organic Nitrogen		0.232
Organic Carbon/Nitrogen		8.53
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.176±0.00269
Phaeopigments Content	($mg \cdot g^{-1}$)	0.176±0.00269

Date 19-V-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	115±0.707
% AFDW		49.5
AFDW	($mg \cdot m^{-3}$)	56.9
Particulate Organic Carbon	($mg \cdot m^{-3}$)	-
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	-
Organic Carbon/Nitrogen		-
Total Chlorophyll	($mg \cdot m^{-3}$)	0.412±0.0325
Phaeopigments	($mg \cdot m^{-3}$)	0±0
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.412±0
Live/Total Chlorophyll		1.00±0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	10.7±4.40
% AFDW		33.2±18.5
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.54±2.00
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.91
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.980±0.333
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.93
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.489±0.00428
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0756±0.0240
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.417±0.0238
Total Carbon/Nitrogen		11.9
Ashed Carbon/Nitrogen		25.9
Organic Carbon/Nitrogen		9.38
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	7.22±0.693
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	4.70±1.19
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.55±0.509
Live/Total Chlorophyll		0.356±0.104

Bottom Sediments		Mean ± S.D.
% AFDW		20.9
% Total Carbon		9.13
% Organic Carbon		6.43
% Total Nitrogen		0.114
% Organic Nitrogen		0.0626
Organic Carbon/Nitrogen		103
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0188±0.00219
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0188±0.00219

Date 25-V-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	501±139
% AFDW		32.8
AFDW	($mg \cdot m^{-3}$)	164
Particulate Organic Carbon	($mg \cdot m^{-3}$)	-
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	-
Organic Carbon/Nitrogen		-
Total Chlorophyll	($mg \cdot m^{-3}$)	1.73±0.0403
Phaeopigments	($mg \cdot m^{-3}$)	0.270±0.00636
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.46±0.0339
Live/Total Chlorophyll		0.843±0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	9.77±1.34
% AFDW		32.6±3.74
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.18±0.172
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.03±0.219
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.909±0.211
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.12±0.00757
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.177±0.0210
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0796±0.00290
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.113±0.00155
Total Carbon/Nitrogen		11.6±2.62
Ashed Carbon/Nitrogen		11.4±2.24
Organic Carbon/Nitrogen		9.94±0.203
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.70±0.0304
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.00±0.555
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.20±0.122
Live/Total Chlorophyll		0.380±0.0424

Bottom Sediments		Mean ± S.D.
% AFDW		17.3
% Total Carbon		8.35
% Organic Carbon		2.85
% Total Nitrogen		0.114
% Organic Nitrogen		0.0436
Organic Carbon/Nitrogen		65.4
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0138±0.00106
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0138±0.00106

Date 01-VI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	202
% AFDW		60.0
AFDW	($mg \cdot m^{-3}$)	121
Particulate Organic Carbon	($mg \cdot m^{-3}$)	112
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	9.01
Organic Carbon/Nitrogen		12.4
Total Chlorophyll	($mg \cdot m^{-3}$)	0.603±0.0580
Phaeopigments	($mg \cdot m^{-3}$)	0.175±0.0170
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.428±0.0410
Live/Total Chlorophyll		0.710±0

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	2.52±1.74
% AFDW		53.8±3.89
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	1.36±0.314
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.73±0.273
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.377±0.0734
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.36±0.200
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.167±0.0261
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0197±0.0113
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.147±0.0147
Total Carbon/Nitrogen		10.4±0.0186
Ashed Carbon/Nitrogen		21.7±0.00848
Organic Carbon/Nitrogen		9.17±0.439
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.64±0.102
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.640±0.0346
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.00±0.0679
Live/Total Chlorophyll		0.757±0.00353

Bottom Sediments		Mean ± S.D.
% AFDW		27.1
% Total Carbon		8.67
% Organic Carbon		4.80
% Total Nitrogen		0.234
% Organic Nitrogen		0.150
Organic Carbon/Nitrogen		32.0
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0168±0.00141
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0168±0.00141

Date 06-VI-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	896±100
% AFDW		85.8
AFDW	($mg \cdot m^{-3}$)	769
Particulate Organic Carbon	($mg \cdot m^{-3}$)	125
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	35.4
Organic Carbon/Nitrogen		3.53
Total Chlorophyll	($mg \cdot m^{-3}$)	0.596±0
Phaeopigments	($mg \cdot m^{-3}$)	0±0
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.596±0
Live/Total Chlorophyll		1.00±0

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	12.1±0.645
% AFDW		45.3±4.88
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.51±0.339
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.44±0.0719
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.04±0.0714
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.41±0.143
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.127±0.00505
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0182±0.0000693
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.109±0.00498
Total Carbon/Nitrogen		19.2±1.32
Ashed Carbon/Nitrogen		57.0±3.70
Organic Carbon/Nitrogen		12.9±1.90
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.37±0.0283
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	1.22±0.233
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.14±0.254
Live/Total Chlorophyll		0.636±0.0714

Bottom Sediments		Mean ± S.D.
% AFDW		20.7
% Total Carbon		8.96
% Organic Carbon		5.64
% Total Nitrogen		0.197
% Organic Nitrogen		0.155
Organic Carbon/Nitrogen		36.4
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0180±0.000707
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0180±0.000707

Date 15-VI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	1960±106
% AFDW		44.1
AFDW	($mg \cdot m^{-3}$)	866
Particulate Organic Carbon	($mg \cdot m^{-3}$)	342
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	49.5
Organic Carbon/Nitrogen		6.91
Total Chlorophyll	($mg \cdot m^{-3}$)	2.02±0.0212
Phaeopigments	($mg \cdot m^{-3}$)	0.210±0.00566
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.81±0.0212
Live/Total Chlorophyll		0.896±0.00353

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	165±6.18
% AFDW		11.0±1.41
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	18.1±1.87
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	14.1±1.20
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	8.16±1.47
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	5.91±0.268
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.698±0.0249
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.196±0.00428
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.502±0.0292
Total Carbon/Nitrogen		20.2±2.44
Ashed Carbon/Nitrogen		41.5±6.58
Organic Carbon/Nitrogen		11.8±0.151
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	14.7±0.636
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	11.8±0.636
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.86±0.0212
Live/Total Chlorophyll		0.196±0.00919

Bottom Sediments		Mean ± S.D.
% AFDW		23.8
% Total Carbon		7.01
% Organic Carbon		3.21
% Total Nitrogen		0.305
% Organic Nitrogen		0.223
Organic Carbon/Nitrogen		14.4
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0182±0.00240
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0182±0.00240

Date 22-VI-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	607±70.7
% AFDW		80.5
AFDW	($mg \cdot m^{-3}$)	489
Particulate Organic Carbon	($mg \cdot m^{-3}$)	146
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	30.6
Organic Carbon/Nitrogen		4.77
Total Chlorophyll	($mg \cdot m^{-3}$)	1.03±0.0537
Phaeopigments	($mg \cdot m^{-3}$)	0.791±0.0898
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.242±0.0353
Live/Total Chlorophyll		0.235±0.0467

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	26.8±3.72
% AFDW		36.1±4.10
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	9.75±2.15
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	5.75±0.307
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.18±0.0671
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	4.57±0.240
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.488±0.0564
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.115±0.00256
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.373±0.0589
Total Carbon/Nitrogen		11.9±2.00
Ashed Carbon/Nitrogen		10.3±0.355
Organic Carbon/Nitrogen		10.3±0.355
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.55±0.0283
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	1.11±0.0707
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.44±0.0424
Live/Total Chlorophyll		0.565±0.0226

Bottom Sediments		Mean ± S.D.
% AFDW		21.8
% Total Carbon		6.76
% Organic Carbon		3.90
% Total Nitrogen		0.332
% Organic Nitrogen		0.185
Organic Carbon/Nitrogen		21.1
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0194±0.000495
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0194±0.000495

Date 30-VI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	2450±1290
% AFDW		27.9
AFDW	($mg \cdot m^{-3}$)	685
Particulate Organic Carbon	($mg \cdot m^{-3}$)	214
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	38.1
Organic Carbon/Nitrogen		5.62
Total Chlorophyll	($mg \cdot m^{-3}$)	0.941±0.0233
Phaeopigments	($mg \cdot m^{-3}$)	0.250±0.00848
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.692±0.0311
Live/Total Chlorophyll		0.735±0.0155

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	35.1±8.03
% AFDW		29.7±1.13
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	10.4±0.778
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.07±0.199
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.894±0.0774
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.18±0.121
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.255±0.0258
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0762±0.000170
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.179±0.0256
Total Carbon/Nitrogen		12.1±2.00
Ashed Carbon/Nitrogen		11.7±1.04
Organic Carbon/Nitrogen		12.3±2.94
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	7.95±1.08
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	6.15±0.650
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.80±0.431
Live/Total Chlorophyll		0.225±0.0240

Bottom Sediments		Mean ± S.D.
% AFDW		22.2
% Total Carbon		8.74
% Organic Carbon		8.30
% Total Nitrogen		0.287
% Organic Nitrogen		0.272
Organic Carbon/Nitrogen		30.5
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0132±0.000353
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0132±0.000353

Date 07-VII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	2070±170
% AFDW		35.1
AFDW	($mg \cdot m^{-3}$)	728
Particulate Organic Carbon	($mg \cdot m^{-3}$)	272
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	42.2
Organic Carbon/Nitrogen		6.44
Total Chlorophyll	($mg \cdot m^{-3}$)	1.13±0.0212
Phaeopigments	($mg \cdot m^{-3}$)	0.224±0.0583
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.916±0.0373
Live/Total Chlorophyll		0.804±0.0481

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	2.65±0.0916
% AFDW		29.1±5.30
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	8.43±1.80
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.87±0.0484
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.567±0.0896
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.31±0.394
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.310±0.00574
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.111±0.00229
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.199±0.00345
Total Carbon/Nitrogen		9.24±1.35
Ashed Carbon/Nitrogen		5.10±0.703
Organic Carbon/Nitrogen		11.6±1.78
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.27±0.614
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.09±0.480
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.10±0.0283
Live/Total Chlorophyll		0.271±0

Bottom Sediments		Mean + S.D.
% AFDW		18.3
% Total Carbon		10.1
% Organic Carbon		6.64
% Total Nitrogen		0.313
% Organic Nitrogen		0.101
Organic Carbon/Nitrogen		65.7
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0157±0.00233
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0157±0.00233

Date 14-VII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	2530±163
% AFDW		40.0
AFDW	($mg \cdot m^{-3}$)	1010
Particulate Organic Carbon	($mg \cdot m^{-3}$)	218
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	42.1
Organic Carbon/Nitrogen		5.18
Total Chlorophyll	($mg \cdot m^{-3}$)	1.70±0.141
Phaeopigments	($mg \cdot m^{-3}$)	0.445±0.0454
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.25±0.0953
Live/Total Chlorophyll		0.738±0.00566

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	107±7.50
% AFDW		15.9±3.46
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	17.0±4.03
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	8.46±1.48
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.03±1.53
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	5.43±0.0479
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.538±0.00318
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0236±0.00574
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.514±0.00257
Total Carbon/Nitrogen		15.7±2.84
Ashed Carbon/Nitrogen		141±99.0
Organic Carbon/Nitrogen		10.6±0.146
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	10.1±0.318
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	8.91±0.334
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.17±0.653
Live/Total Chlorophyll		0.115±0.0609

Bottom Sediments		Mean + S.D.
% AFDW		19.3
% Total Carbon		7.03
% Organic Carbon		3.96
% Total Nitrogen		0.282
% Organic Nitrogen		0.129
Organic Carbon/Nitrogen		30.7
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0169±0.00106
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0169±0.00106

Date 21-VII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3360±115
% AFDW		76.2
AFDW	($mg \cdot m^{-3}$)	2560
Particulate Organic Carbon	($mg \cdot m^{-3}$)	269
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	60.0
Organic Carbon/Nitrogen		4.48
Total Chlorophyll	($mg \cdot m^{-3}$)	1.67±0.00707
Phaeopigments	($mg \cdot m^{-3}$)	0.316±0.0510
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.36±0.0572
Live/Total Chlorophyll		0.814±0.0346

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	30.5±0.138
% AFDW		13.5±2.19
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	29.9±4.65
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	16.5±1.23
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	10.1±0.940
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	6.39±0.291
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.859±0.0289
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.336±0.0396
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.523±0.0685
Total Carbon/Nitrogen		19.2±2.07
Ashed Carbon/Nitrogen		30.0±0.749
Organic Carbon/Nitrogen		12.3±2.17
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	15.1±2.03
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	14.2±1.91
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.915±0.123
Live/Total Chlorophyll		0.0605±0

Bottom Sediments		Mean + S.D.
% AFDW		7.42
% Total Carbon		7.00
% Organic Carbon		2.46
% Total Nitrogen		0.176
% Organic Nitrogen		0.0152
Organic Carbon/Nitrogen		162
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0160±0.000778
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0160±0.000778

Date 28-VII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1620±70.7
% AFDW		38.1
AFDW	($mg \cdot m^{-3}$)	617
Particulate Organic Carbon	($mg \cdot m^{-3}$)	203
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	58.2
Organic Carbon/Nitrogen		3.49
Total Chlorophyll	($mg \cdot m^{-3}$)	1.07±0.0141
Phaeopigments	($mg \cdot m^{-3}$)	0.379±0.0298
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.693±0.0105
Live/Total Chlorophyll		0.632±0.0417

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	15.0±4.20
% AFDW		26.3±2.54
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	4.60±0.483
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.14±0.150
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.303±0.0408
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.84±0.109
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.262±0.0201
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0907±0.0191
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.172±0.00109
Total Carbon/Nitrogen		8.16±0.0559
Ashed Carbon/Nitrogen		3.37±0.258
Organic Carbon/Nitrogen		10.7±0.566
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	5.45±0.0827
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	4.35±0.556
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.10±0.473
Live/Total Chlorophyll		0.201±0.0926

Bottom Sediments		Mean + S.D.
% AFDW		9.99
% Total Carbon		9.47
% Organic Carbon		2.88
% Total Nitrogen		0.0971
% Organic Nitrogen		0.0448
Organic Carbon/Nitrogen		64.3
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0171±0.000848
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0171±0.000848

Date 04-VIII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3010±60.1
% AFDW		23.0
AFDW	($mg \cdot m^{-3}$)	692
Particulate Organic Carbon	($mg \cdot m^{-3}$)	125
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	22.9
Organic Carbon/Nitrogen		5.46
Total Chlorophyll	($mg \cdot m^{-3}$)	0.836±0.0127
Phaeopigments	($mg \cdot m^{-3}$)	0.0810±0.0282
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.755±0.0410
Live/Total Chlorophyll		0.903±0.0353

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	26.9±1.32
% AFDW		20.3±1.63
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.42±0.369
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.74±0.190
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.181±0.0654
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.56±0.122
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.260±0.0471
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.109±0.0394
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.151±0.00763
Total Carbon/Nitrogen		6.72±0.483
Ashed Carbon/Nitrogen		1.65±0.00486
Organic Carbon/Nitrogen		10.3±0.305
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.06±0.0368
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.900±0.0855
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.16±0.122
Live/Total Chlorophyll		0.563±0.0495

Bottom Sediments		Mean + S.D.
% AFDW		9.80
% Total Carbon		7.42
% Organic Carbon		2.14
% Total Nitrogen		0.191
% Organic Nitrogen		0.144
Organic Carbon/Nitrogen		14.9
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00973±0.000799
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00973±0.000799

Date 15-VIII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1120±35.3
% AFDW		51.8
AFDW	($mg \cdot m^{-3}$)	583
Particulate Organic Carbon	($mg \cdot m^{-3}$)	178
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	52.6
Organic Carbon/Nitrogen		3.38
Total Chlorophyll	($mg \cdot m^{-3}$)	0.778±0.0870
Phaeopigments	($mg \cdot m^{-3}$)	0.211±0.0686
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.566±0.155
Live/Total Chlorophyll		0.721±0.119

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	8.54±0.777
% AFDW		29.9±8.70
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.54±0.652
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.76±0.00534
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.333±0.0994
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.43±0.0207
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.228±0.0692
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0545±0.0101
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.173±0.0590
Total Carbon/Nitrogen		8.21±3.02
Ashed Carbon/Nitrogen		6.40±3.02
Organic Carbon/Nitrogen		8.79±3.12
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.58±0.00707
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	1.06±0.0636
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.517±0.0686
Live/Total Chlorophyll		0.327±0.0417

Bottom Sediments		Mean + S.D.
% AFDW		12.5
% Total Carbon		6.23
% Organic Carbon		1.75
% Total Nitrogen		0.303
% Organic Nitrogen		0.202
Organic Carbon/Nitrogen		8.66
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0119
Phaeopigments Content	($mg \cdot g^{-1}$)	0.000353

Date 23-VIII-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	1650±124
% AFDW		34.5
AFDW	($mg \cdot m^{-3}$)	570
Particulate Organic Carbon	($mg \cdot m^{-3}$)	222
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	46.1
Organic Carbon/Nitrogen		4.81
Total Chlorophyll	($mg \cdot m^{-3}$)	2.17±0.0141
Phaeopigments	($mg \cdot m^{-3}$)	0.628±0.0855
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.54±0.0990
Live/Total Chlorophyll		0.710±0.0410

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	19.9±3.37
% AFDW		19.2±4.67
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.72±0.180
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.47±0.464
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.885±0.178
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.62±0.320
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.164±0.00535
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.00888±0.00159
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.155±0.00694
Total Carbon/Nitrogen		15.1±3.54
Ashed Carbon/Nitrogen		95.9±2.92
Organic Carbon/Nitrogen		10.5±2.53
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.96±0.219
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.01±0.212
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.949±0.00919
Live/Total Chlorophyll		0.321±0.0212

Bottom Sediments		Mean ± S.D.
% AFDW		12.1
% Total Carbon		6.32
% Organic Carbon		2.51
% Total Nitrogen		0.209
% Organic Nitrogen		0.0411
Organic Carbon/Nitrogen		61.2
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0135±0.000990
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0135±0.000990

Date 30-VIII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3680±42.4
% AFDW		26.4
AFDW	($mg \cdot m^{-3}$)	971
Particulate Organic Carbon	($mg \cdot m^{-3}$)	141
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	47.7
Organic Carbon/Nitrogen		2.95
Total Chlorophyll	($mg \cdot m^{-3}$)	0.921±0.170
Phaeopigments	($mg \cdot m^{-3}$)	0.252±0.0912
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.668±0.107
Live/Total Chlorophyll		0.724±0.104

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	24.7±0.629
% AFDW		23.7±3.75
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.88±1.06
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.56±0.357
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.308±0.0348
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.25±0.322
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.271±0.0811
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0688±0.0157
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.202±0.0654
Total Carbon/Nitrogen		9.70±1.59
Ashed Carbon/Nitrogen		4.54±0.529
Organic Carbon/Nitrogen		11.5±2.13
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.09±0.00707
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.36±0.290
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.715±0.295
Live/Total Chlorophyll		0.232±0.0947

Bottom Sediments		Mean ± S.D.
% AFDW		9.67
% Total Carbon		7.43
% Organic Carbon		4.37
% Total Nitrogen		0.181
% Organic Nitrogen		0.0545
Organic Carbon/Nitrogen		80.2
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00830±0.000877
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00830±0.000877

Date 06-IX-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3770±84.8
% AFDW		26.5
AFDW	($mg \cdot m^{-3}$)	999
Particulate Organic Carbon	($mg \cdot m^{-3}$)	187
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	39.3
Organic Carbon/Nitrogen		4.76
Total Chlorophyll	($mg \cdot m^{-3}$)	0.799±0.0452
Phaeopigments	($mg \cdot m^{-3}$)	0.188±0.0170
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.610±0.0629
Live/Total Chlorophyll		0.763±0.0346

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	33.1±1.53
% AFDW		24.4±0.0707
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	8.06±0.0286
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.91±0.0000164
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.264±0.0144
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.65±0.0143
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.141±0.00934
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0169±0.000497
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.124±0.00885
Total Carbon/Nitrogen		13.6±0.902
Ashed Carbon/Nitrogen		15.6±0.391
Organic Carbon/Nitrogen		13.3±1.07
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.24±0.0509
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.18±0.365
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.06±0.313
Live/Total Chlorophyll		0.329±0.102

Bottom Sediments		Mean + S.D.
% AFDW		9.75
% Total Carbon		8.44
% Organic Carbon		1.75
% Total Nitrogen		0.112
% Organic Nitrogen		0.100
Organic Carbon/Nitrogen		17.5
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00920±0.000269
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00920±0.000269

Date 12-IX-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1450±219
% AFDW		45.4
AFDW	($mg \cdot m^{-3}$)	660
Particulate Organic Carbon	($mg \cdot m^{-3}$)	247
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	54.6
Organic Carbon/Nitrogen		4.52
Total Chlorophyll	($mg \cdot m^{-3}$)	1.15±0.0481
Phaeopigments	($mg \cdot m^{-3}$)	0.276±0.0325
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.875±0.0148
Live/Total Chlorophyll		0.761±0.0184

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	15.1±0.843
% AFDW		27.6±1.41
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	4.18±0.234
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.11±0.0270
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.632±0.0865
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.48±0.0595
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.260±0.00307
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0747±0.000134
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.186±0.00320
Total Carbon/Nitrogen		8.11±0.199
Ashed Carbon/Nitrogen		8.46±1.14
Organic Carbon/Nitrogen		7.97±0.183
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	5.00±0.619
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.81±0.0601
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.19±0.559
Live/Total Chlorophyll		0.434±0.0580

Bottom Sediments		Mean + S.D.
% AFDW		8.08
% Total Carbon		8.00
% Organic Carbon		1.24
% Total Nitrogen		0.203
% Organic Nitrogen		0.127
Organic Carbon/Nitrogen		9.76
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0159±0.00290
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0159±0.00290

Date 21-IX-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	4990±219
% AFDW		25.4
AFDW	($mg \cdot m^{-3}$)	1270
Particulate Organic Carbon	($mg \cdot m^{-3}$)	240
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	65.1
Organic Carbon/Nitrogen		3.69
Total Chlorophyll	($mg \cdot m^{-3}$)	1.45±0.00636
Phaeopigments	($mg \cdot m^{-3}$)	0.236±0.0346
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.22±0.0269
Live/Total Chlorophyll		0.837±0.0226

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	72.7±10.6
% AFDW		18.9±1.77
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	13.7±1.43
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	4.54±0.301
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.19±0.0538
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.35±0.355
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.474±0.00198
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.110±0.00323
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.364±0.00125
Total Carbon/Nitrogen		9.57±0.675
Ashed Carbon/Nitrogen		10.8±0.172
Organic Carbon/Nitrogen		9.19±0.943
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	11.0±0.205
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	6.53±0.0686
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	4.51±0.141
Live/Total Chlorophyll		0.409±0.00495

Bottom Sediments		Mean ± S.D.
% AFDW		7.38
% Total Carbon		7.00
% Organic Carbon		2.13
% Total Nitrogen		0.329
% Organic Nitrogen		0.213
Organic Carbon/Nitrogen		10.0
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00981±0.00112
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00981±0.00112

Date 28-IX-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	996±0
% AFDW		39.5
AFDW	($mg \cdot m^{-3}$)	393
Particulate Organic Carbon	($mg \cdot m^{-3}$)	104
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	46.5
Organic Carbon/Nitrogen		2.23
Total Chlorophyll	($mg \cdot m^{-3}$)	0.493±0.000707
Phaeopigments	($mg \cdot m^{-3}$)	0.163±0.0240
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.345±0.0460
Live/Total Chlorophyll		0.669±0.0495

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	15.7±5.59
% AFDW		29.9±2.26
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	4.67±0.363
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.33±0.0576
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.399±0.0413
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.93±0.0989
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.293±0.0405
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0948±0.0136
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.198±0.0271
Total Carbon/Nitrogen		8.04±1.31
Ashed Carbon/Nitrogen		4.22±0.171
Organic Carbon/Nitrogen		9.87±1.85
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.94±0.143
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.45±0.438
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.710±0.0254
Live/Total Chlorophyll		0.180±0.0000707

Bottom Sediments		Mean + S.D.
% AFDW		8.51
% Total Carbon		8.16
% Organic Carbon		1.00
% Total Nitrogen		0.310
% Organic Nitrogen		0.132
Organic Carbon/Nitrogen		7.57
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00696±0.000806
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00696±0.000806

Date 04-X-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1060±91.9
% AFDW		44.5
AFDW	($mg \cdot m^{-3}$)	474
Particulate Organic Carbon	($mg \cdot m^{-3}$)	137
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	19.6
Organic Carbon/Nitrogen		6.99
Total Chlorophyll	($mg \cdot m^{-3}$)	0.733±0.0184
Phaeopigments	($mg \cdot m^{-3}$)	0.154±0.0537
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.578±0.0353
Live/Total Chlorophyll		0.790±0.0679

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	16.8±1.19
% AFDW		22.3±2.26
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.73±0.205
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.97±0.140
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.657±0.0471
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.31±0.187
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.166±0.00860
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0181±0.00561
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.148±0.0140
Total Carbon/Nitrogen		11.7±1.44
Ashed Carbon/Nitrogen		38.4±14.4
Organic Carbon/Nitrogen		8.95±2.11
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.61±0.218
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.59±0.513
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.02±0.730
Live/Total Chlorophyll		0.217±0.148

Bottom Sediments		Mean ± S.D.
% AFDW		-
% Total Carbon		-
% Organic Carbon		-
% Total Nitrogen		-
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	-
Phaeopigments Content	($mg \cdot g^{-1}$)	-

Date 12-X-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	822±82.7
% AFDW		35.6
AFDW	($mg \cdot m^{-3}$)	293
Particulate Organic Carbon	($mg \cdot m^{-3}$)	138
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	24.7
Organic Carbon/Nitrogen		5.59
Total Chlorophyll	($mg \cdot m^{-3}$)	0.576±0.00141
Phaeopigments	($mg \cdot m^{-3}$)	0.128±0.0170
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.448±0.0155
Live/Total Chlorophyll		0.778±0.0290

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	12.9±0.294
% AFDW		25.7±4.60
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.32±0.613
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.34±0.152
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.597±0.0114
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.75±0.141
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.596±0.0456
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.313±0.130
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.284±0.175
Total Carbon/Nitrogen		3.93±0.0459
Ashed Carbon/Nitrogen		2.10±0.907
Organic Carbon/Nitrogen		7.43±4.10
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.72±0.509
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.82±1.20
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.90±1.71
Live/Total Chlorophyll		0.386±0.320

Bottom Sediments		Mean ± S.D.
% AFDW		7.13
% Total Carbon		7.00
% Organic Carbon		1.30
% Total Nitrogen		0.195
% Organic Nitrogen		0.100
Organic Carbon/Nitrogen		13.0
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0146±0.00990
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0146±0.00990

Date 18-X-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	1090±52.3
% AFDW		44.0
AFDW	($mg \cdot m^{-3}$)	479
Particulate Organic Carbon	($mg \cdot m^{-3}$)	165
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	84.7
Organic Carbon/Nitrogen		1.95
Total Chlorophyll	($mg \cdot m^{-3}$)	0.706±0.00495
Phaeopigments	($mg \cdot m^{-3}$)	0.146±0.0622
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.560±0.0665
Live/Total Chlorophyll		0.793±0.0898

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	11.1±0.991
% AFDW		34.9±1.98
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.87±0.269
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.04±0.190
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.676±0.153
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.37±0.0374
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.182±0.0126
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0485±0.0273
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.134±0.0150
Total Carbon/Nitrogen		11.2±0.270
Ashed Carbon/Nitrogen		15.5±5.57
Organic Carbon/Nitrogen		10.3±1.44
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	5.09±0.144
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	5.04±0.0863
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0450±0.0580
Live/Total Chlorophyll		0.0123±0.00606

Bottom Sediments		Mean ± S.D.
% AFDW		17.0
% Total Carbon		7.98
% Organic Carbon		2.81
% Total Nitrogen		0.279
% Organic Nitrogen		0.216
Organic Carbon/Nitrogen		13.0
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0151±0.000919
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0151±0.000919

Date 25-X-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1800±56.6
% AFDW		51.2
AFDW	($mg \cdot m^{-3}$)	922
Particulate Organic Carbon	($mg \cdot m^{-3}$)	306
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	50.0
Organic Carbon/Nitrogen		6.12
Total Chlorophyll	($mg \cdot m^{-3}$)	1.35±0.0283
Phaeopigments	($mg \cdot m^{-3}$)	0.341±0.0707
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.01±0.0997
Live/Total Chlorophyll		0.747±0.0580

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	24.2±7.35
% AFDW		21.3±1.63
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.22±2.12
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.28±0.270
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.738±0.204
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.54±0.0660
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.408±0.148
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.136±0.0330
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.277±0.175
Total Carbon/Nitrogen		5.75±1.32
Ashed Carbon/Nitrogen		5.77±2.90
Organic Carbon/Nitrogen		6.87±4.10
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.78±0.191
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	1.76±0.481
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.02±0.290
Live/Total Chlorophyll		0.537±0.104

Bottom Sediments		Mean ± S.D.
% AFDW		13.9
% Total Carbon		7.70
% Organic Carbon		2.22
% Total Nitrogen		0.348
% Organic Nitrogen		-
Organic Carbon/Nitrogen		-
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0208±0.00311
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0208±0.00311

Date 01-XI-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	2870±70.7
% AFDW		28.7
AFDW	($mg \cdot m^{-3}$)	824
Particulate Organic Carbon	($mg \cdot m^{-3}$)	258
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	36.8
Organic Carbon/Nitrogen		7.01
Total Chlorophyll	($mg \cdot m^{-3}$)	0.705±0.00778
Phaeopigments	($mg \cdot m^{-3}$)	0.305±0.111
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.384±0.141
Live/Total Chlorophyll		0.554±0.180

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	22.2±2.12
% AFDW		27.5±2.05
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	6.12±0.941
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.53±0.0834
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.251±0.185
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.27±0.194
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.316±0.0188
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.189±0.000707
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.127±0.0195
Total Carbon/Nitrogen		4.84±0.262
Ashed Carbon/Nitrogen		1.33±0.977
Organic Carbon/Nitrogen		10.0±0.0181
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.08±0.0375
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.69±0.231
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.382±0.267
Live/Total Chlorophyll		0.124±0.0855

Bottom Sediments		Mean ± S.D.
% AFDW		16.9
% Total Carbon		8.93
% Organic Carbon		4.02
% Total Nitrogen		0.238
% Organic Nitrogen		0.0270
Organic Carbon/Nitrogen		149
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0210±0.00134
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0210±0.00134

Date 09-XI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	3120±141
% AFDW		18.2
AFDW	($mg \cdot m^{-3}$)	568
Particulate Organic Carbon	($mg \cdot m^{-3}$)	150
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	21.4
Organic Carbon/Nitrogen		7.01
Total Chlorophyll	($mg \cdot m^{-3}$)	1.29±0.111
Phaeopigments	($mg \cdot m^{-3}$)	0.220±0.0247
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.07±0.0870
Live/Total Chlorophyll		0.830±0.00424

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	8.41±1.85
% AFDW		39.9±2.90
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.34±0.153
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.95±0.157
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.218±0.0456
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.73±0.203
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.196±0.0227
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0368±0.000247
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.160±0.0224
Total Carbon/Nitrogen		9.96±0.348
Ashed Carbon/Nitrogen		5.93±1.28
Organic Carbon/Nitrogen		10.9±0.257
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.52±0.129
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	3.09±0.291
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.43±0.160
Live/Total Chlorophyll		0.317±0.0445

Bottom Sediments		Mean ± S.D.
% AFDW		19.5
% Total Carbon		7.90
% Organic Carbon		4.58
% Total Nitrogen		0.223
% Organic Nitrogen		0.115
Organic Carbon/Nitrogen		39.8
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0171±0.00262
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0171±0.00262

Date 17-XI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	1440±148
% AFDW		51.0
AFDW	($mg \cdot m^{-3}$)	737
Particulate Organic Carbon	($mg \cdot m^{-3}$)	229
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	40.3
Organic Carbon/Nitrogen		5.68
Total Chlorophyll	($mg \cdot m^{-3}$)	1.37±0.143
Phaeopigments	($mg \cdot m^{-3}$)	0.134±0.0513
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.24±0.194
Live/Total Chlorophyll		0.900±0.0474

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	17.0±2.18
% AFDW		33.2±0.990
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.64±0.0744
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.59±0.136
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.329±0.0318
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.26±0.104
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.208±0.000571
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.112±0.0120
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0949±0.0109
Total Carbon/Nitrogen		7.66±0.694
Ashed Carbon/Nitrogen		2.95±0.597
Organic Carbon/Nitrogen		13.3±0.434
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	4.34±0.288
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.10±0.102
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	2.52±0
Live/Total Chlorophyll		0.515±0.0559

Bottom Sediments		Mean ± S.D.
% AFDW		15.3
% Total Carbon		4.78
% Organic Carbon		0.743
% Total Nitrogen		0.208
% Organic Nitrogen		0.0947
Organic Carbon/Nitrogen		7.84
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0147±0.000778
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0147±0.000778

Date 23-XI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	2330±191
% AFDW		71.6
AFDW	($mg \cdot m^{-3}$)	1670
Particulate Organic Carbon	($mg \cdot m^{-3}$)	607
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	73.7
Organic Carbon/Nitrogen		8.24
Total Chlorophyll	($mg \cdot m^{-3}$)	2.62±0.109
Phaeopigments	($mg \cdot m^{-3}$)	0.295±0.0622
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	2.32±0.170
Live/Total Chlorophyll		0.887±0.0283

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	16.6±1.92
% AFDW		33.4±0.283
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	5.55±0.425
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.31±0.00498
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.274±0.0304
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.03±0.0254
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.200±0.0302
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0954±0.0198
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.104±0.0103
Total Carbon/Nitrogen		6.63±1.03
Ashed Carbon/Nitrogen		2.97±0.936
Organic Carbon/Nitrogen		10.0±0.643
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	3.16±0.571
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.00±0.0855
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.16±0.486
Live/Total Chlorophyll		0.359±0.0884

Bottom Sediments		Mean ± S.D.
% AFDW		15.4
% Total Carbon		8.68
% Organic Carbon		4.47
% Total Nitrogen		0.191
% Organic Nitrogen		0.0915
Organic Carbon/Nitrogen		48.8
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.00786±0.000177
Phaeopigments Content	($mg \cdot g^{-1}$)	0.00786±0.000177

Date 30-XI-1978

Suspended Particulate Matter		Mean ± S.D.
Dry Weight	($mg \cdot m^{-3}$)	1030±2.83
% AFDW		36.2
AFDW	($mg \cdot m^{-3}$)	374
Particulate Organic Carbon	($mg \cdot m^{-3}$)	140
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	20.0
Organic Carbon/Nitrogen		7.00
Total Chlorophyll	($mg \cdot m^{-3}$)	0.919±0.0643
Phaeopigments	($mg \cdot m^{-3}$)	0.152±0.0148
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.767±0.0495
Live/Total Chlorophyll		0.835±0.00495

Trapped Particulate Matter		Mean ± S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	8.15±0.832
% AFDW		33.5±0.848
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	2.73±0.360
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.65±0.107
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.0857±0.0103
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.57±0.0967
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.247±0.0195
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0818±0.00166
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.166±0.0212
Total Carbon/Nitrogen		6.68±0.0949
Ashed Carbon/Nitrogen		1.05±0.147
Organic Carbon/Nitrogen		9.50±0.630
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	1.80±0.00424
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	0.393±0.146
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	1.40±0.150
Live/Total Chlorophyll		0.780±0.0834

Bottom Sediments		Mean ± S.D.
% AFDW		13.4
% Total Carbon		9.51
% Organic Carbon		5.23
% Total Nitrogen		0.298
% Organic Nitrogen		0.196
Organic Carbon/Nitrogen		26.7
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0260±0.00134
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0260±0.00134

Date 07-XII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	2320±106
% AFDW		55.5
AFDW	($mg \cdot m^{-3}$)	1290
Particulate Organic Carbon	($mg \cdot m^{-3}$)	213
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	53.5
Organic Carbon/Nitrogen		3.98
Total Chlorophyll	($mg \cdot m^{-3}$)	2.81±0.153
Phaeopigments	($mg \cdot m^{-3}$)	0.59±0.0700
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	2.21±0.219
Live/Total Chlorophyll		0.787±0.0361

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	33.2±4.51
% AFDW		14.9±0.495
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	4.94±0.815
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.43±0.160
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.78±0.00954
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.650±0.169
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.199±0.0115
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.0741±0.00141
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.125±0.0130
Total Carbon/Nitrogen		12.2±1.51
Ashed Carbon/Nitrogen		24.2±0.244
Organic Carbon/Nitrogen		5.28±1.90
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	5.83±0.139
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	5.75±0.138
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.0745±0.00177
Live/Total Chlorophyll		0.0128±0.0000707

Bottom Sediments		Mean ± S.D.
% AFDW		16.0
% Total Carbon		7.07
% Organic Carbon		4.56
% Total Nitrogen		0.292
% Organic Nitrogen		0.105
Organic Carbon/Nitrogen		43.4
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0218±0.00134
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0218±0.00134

Date 22-XII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	3490±353
% AFDW		31.2
AFDW	($mg \cdot m^{-3}$)	1090
Particulate Organic Carbon	($mg \cdot m^{-3}$)	300
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	50.2
Organic Carbon/Nitrogen		5.98
Total Chlorophyll	($mg \cdot m^{-3}$)	1.66±0.0297
Phaeopigments	($mg \cdot m^{-3}$)	0.497±0.0113
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	1.16±0.0410
Live/Total Chlorophyll		0.700±0.0120

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	129±4.99
% AFDW		13.9±1.48
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	18.0±2.31
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	10.3±0.147
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	6.68±0.329
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	3.64±0.476
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.465±0.0250
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.141±0.00200
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.324±0.0270
Total Carbon/Nitrogen		22.2±0.878
Ashed Carbon/Nitrogen		47.3±1.66
Organic Carbon/Nitrogen		11.2±0.536
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	9.93±0.762
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	9.47±0.727
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.464±0.0353
Live/Total Chlorophyll		0.0467±0.0000283

Bottom Sediments		Mean + S.D.
% AFDW		11.0
% Total Carbon		8.03
% Organic Carbon		1.95
% Total Nitrogen		0.195
% Organic Nitrogen		0.102
Organic Carbon/Nitrogen		19.1
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0108±0.00128
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0108±0.00128

Date 29-XII-1978

Suspended Particulate Matter		Mean + S.D.
Dry Weight	($mg \cdot m^{-3}$)	1000±219
% AFDW		42.6
AFDW	($mg \cdot m^{-3}$)	426
Particulate Organic Carbon	($mg \cdot m^{-3}$)	129
Particulate Organic Nitrogen	($mg \cdot m^{-3}$)	35.0
Organic Carbon/Nitrogen		3.68
Total Chlorophyll	($mg \cdot m^{-3}$)	0.847±0.0127
Phaeopigments	($mg \cdot m^{-3}$)	0.207±0.00424
Live Chlorophyll *a*	($mg \cdot m^{-3}$)	0.639±0.0177
Live/Total Chlorophyll		0.754±0.00848

Trapped Particulate Matter		Mean + S.D.
Dry Weight	($g \cdot m^{-2} \cdot day^{-1}$)	16.9±1.98
% AFDW		19.3±0.707
AFDW	($g \cdot m^{-2} \cdot day^{-1}$)	3.26±0.153
Total Particulate Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	2.55±0.177
Particulate Ashed Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	0.674±0.143
Particulate Organic Carbon	($g \cdot m^{-2} \cdot day^{-1}$)	1.58±0.0335
Total Particulate Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.143±0.00181
Particulate Ashed Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.00907±0.000842
Particulate Organic Nitrogen	($g \cdot m^{-2} \cdot day^{-1}$)	0.134±0.0269
Total Carbon/Nitrogen		15.7±1.43
Ashed Carbon/Nitrogen		73.9±8.94
Organic Carbon/Nitrogen		11.8±0.485
Total Chlorophyll	($mg \cdot m^{-2} \cdot day^{-1}$)	2.71±0.214
Phaeopigments	($mg \cdot m^{-2} \cdot day^{-1}$)	2.51±0.359
Live Chlorophyll *a*	($mg \cdot m^{-2} \cdot day^{-1}$)	0.197±0.145
Live/Total Chlorophyll		0.0750±0.0594

Bottom Sediments		Mean ± S.D.
% AFDW		10.6
% Total Carbon		8.35
% Organic Carbon		3.43
% Total Nitrogen		0.307
% Organic Nitrogen		0.220
Organic Carbon/Nitrogen		15.6
Total Chlorophyll Content	($mg \cdot g^{-1}$)	0.0173±0.000636
Phaeopigments Content	($mg \cdot g^{-1}$)	0.0173±0.000636